TECHNOLOGY DEPT.

February 4, 1942

NATIONAL PETROLEUM NEWS

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REFINING TECHNOLOGY EDITION

OUR DEFENSE ASSIGNMENT
Manufacturing various ammunition components with the unvarying precision required by government specifications.
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READY FOR *Action* – EVEN IN TOUGHEST WEATHER!

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TOKHEIM OIL TANK & PUMP CO.
DESIGNERS AND BUILDERS OF SUPERIOR EQUIPMENT
FORT WAYNE FOR 41 YEARS INDIANA

COMING MEETINGS

FEBRUARY

American Institute of Mining & Metallurgical Engineers, Petroleum Div., Annual Meeting, Engineers Bldg., New York, N. Y., Mon.-Thurs., Feb. 9-12.
Kentucky Petroleum Marketers, 16th Annual Meeting, Brown Hotel, Louisville, Ky., Tues.-Wed., Feb. 10-11.
Missouri Independent Oil Jobbers Assn., 5th Annual Convention, Missouri Hotel, Jefferson City, Mo., Wed.-Thurs., Feb. 11-12.
Liquefied Petroleum Gas Assn., Annual Convention, Kansas City, Mo., Mon.-Wed., Feb. 23-25.
Iowa Independent Oil Jobbers' Assn., Annual Convention, Hotel Fort Des Moines, Des Moines, Ia., Wed.-Fri., Feb. 25-27.
American Petroleum Institute, Div. of Production, Southwestern District, Spring Meeting, Adolphus Hotel, Dallas, Tex., Thurs.-Fri., Feb. 26-27.
North Texas Oil & Gas Assn., Wichita Falls, Tex., Sat., Feb. 28.

MARCH

American Society for Testing Materials, Committee Week and Spring Meeting, Cleveland, Ohio. Mon.-Thurs., March 2-5.
Indiana Independent Petroleum Assn., Spring Convention and Refiners' and Suppliers' Exhibit, Hotel Severin, Indianapolis, Ind., Tues.-Thurs., March 3-5.
Oil Trades Assn. of New York, Annual Meeting & Election of Officers, Waldorf-Astoria Hotel, N. Y., Tues., March 10.
American Petroleum Institute, Div. of Production, Pacific Coast District, Spring Meeting, Biltmore Hotel, Los Angeles, Calif., Tues., March 10.
Illinois Petroleum Marketers Assn., Annual Convention, Hotel Pere Marquette, Peoria, Ill., Tues.-Thurs., March 10-12.
Wisconsin Petroleum Assn., Annual Convention and Equipment Show, Schroeder Hotel, Milwaukee, Wis., Wed.-Fri., March 18-20.
American Society of Mechanical Engineers, Spring Meeting, Houston, Tex., Mon.-Wed., March 23-25.
Retail Gasoline Dealers Assn. of Michigan, Annual State Convention, Pantland Hotel, Grand Rapids, Mich., Tues.-Wed., March 24-25.
American Petroleum Institute, Div. of Production, Mid-Continent District, Spring Meeting, Mayo Hotel, Tulsa, Okla., Thurs.-Fri., March 26-27.
New York Oil Heating Assn., Inc., Annual Dinner Dance, Hotel Pennsylvania, New York, N. Y., Sat., March 28.

APRIL

American Petroleum Institute, Div. of Production, Eastern District, Spring Meeting, William Penn Hotel, Pittsburgh, Pa., Thurs.-Fri., April 9-10.
Midwest Power Conference, Annual Meeting, Palmer House, Chicago, Ill., Thurs.-Fri., April 9-10.
American Institute of Mining & Metallurgical Engineers, Cincinnati, O., Wed.-Fri., April 15-17.
National Petroleum Assn., 39th Semi-Annual Meeting, Hotel Cleveland, Cleveland, O., April 16-17.
American Chemical Society, 103rd Meeting, Memphis, Tenn., Mon.-Fri., April 20-24.
American Assn. of Petroleum Geologists, 27th Annual Meeting, Cosmopolitan Hotel, Denver, Colo., Tues.-Fri., April 21-24.
Petroleum Industry Electrical Assn., Washington-Youree Hotel, Shreveport, La., Wed.-Fri., April 22-24.

MAY

American Institute of Chemical Engineers, Semi-Annual Meeting, Boston, Mass., Mon.-Wed., May 11-13.
Natural Gasoline Assn. of America, 21st Annual Convention, Mayo Hotel, Tulsa, Okla., Wed.-Fri., May 13-15.
International Petroleum Exposition, Tulsa, Okla., Sat.-Sat., May 16-23.
National Assn. of Purchasing Agents, (Oil Company Buyers' Group), Waldorf-Astoria Hotel, New York, N. Y., Mon.-Thurs., May 25-28.
American Petroleum Institute, 12th Mid-Year Meeting, Oklahoma Biltmore Hotel, Oklahoma City, Okla., Mon.-Thurs., May 25-28.

JUNE

American Society of Mechanical Engineers, Semi-Annual Meeting, Cleveland, Ohio, Mon.-Thurs., June 8-11.
Oil Trades Assn. of New York, Sports Day, Pelham Country Club, Pelham Manor, N. Y., Tues., June 9.
American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., Mon.-Fri., June 22-26.

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THIS WEEK WITH NPN

THUMBS UP IN HAWAII

Shortly after the bombing of Pearl Harbor, one of NPN's Hawaiian subscribers wrote in to order Warren C. Platt's new book "The Future for the Independent Oil Jobber".

His communication, received this week, also renews his subscription to NPN for another year and ends by wishing the NPN staff a "Merry Christmas and Aloha". On the bottom, in heavy red pencil, were the underlined words: "Remember Pearl Harbor".

BUSINESS ESSENTIAL

"We just discovered today that through some oversight our subscription to NPN had run out," writes a Pennsylvania subscriber. "We would almost as soon think of doing business without a telephone as without the News. We have had the current issues of NPN on our desk for some twenty-four years and feel lost without it."

JUDGE READS O-L-G

We wouldn't like to embarrass the gentleman by identifying him. We'll only say that he is a judge and also chairman of the tire rationing board in one of the largest U. S. cities. The other day our attention was called to a newspaper picture of the judge. He was pictured discussing the latest tire rationing order with a local board chairman. Open in front of him, the newspaper clipping showed, was a volume of *Platt's OIL-Law-GRAM*.

For those NPN readers not familiar with this newest of the Platt publications, we point out that it is a loose-leaf service carrying printed texts of all orders—such as the tire rationing orders — affecting the oil industry. An attractive O-L-G binder is available for filing of the printed texts, thus providing a ready reference on OPA price orders, priorities, OPC recommendations and all of the war-oil "law" that is pouring out of Washington. (For further details, See Page 26 of this issue.)

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Howard J. MacGready

P. F. Edwards

Elmer E. Ledbetter

Detroit Oil Men's Club, Age 3, Is a Thriving 'Youngster'

Wray B. Bailey

THREE years old in '42 and thriving on its credo of "pleasure, social recreation, charity and the promotion of good fellowship", the Detroit Oil Men's Club enters the new year with 115 members, two new officers and five new directors.

Heading the club is the new president, Wray B. Bailey, treasurer of the Wilson Oil Corp. Newly-elected vice-president is Howard J. MacGready, assistant general sales manager of the Aurora Gasoline Co. P. F. Edwards, assistant vice-president of the Fuel Oil Corp., was re-elected treasurer for 1942, and Elmer E. Ledbetter, who has been secretary of the club since its birth in 1939, was again elected to that position.

New directors are: Glenn E. Keister, 1941's president, who is Michigan sales manager for Shell; Royal E. Decker, president of Plymouth Oil Co., and also president of the National Oil Marketers Assn.; Harry Victor, vice-president of Victor Oil Co.; Robert Terry, general manager of Blue Flame Oil Co.; and Abner Davis, sales representative for Highland Oil Corp.

Club membership, as from the first, is by invitation and includes only wholesale oil marketers and associate members from allied industries. Proud of its clubrooms on the fourth floor of the Detroit-Leland Hotel, the club throws its doors open to out-of-town oil men at all times.

Glenn E. Keister

Royal E. Decker

Harry Victor

Robert Terry

Abner Davis

NATIONAL PETROLEUM NEWS

VOLUME 34 WEDNESDAY, FEBRUARY 4, 1942 NUMBER 5

Oil Price 'Freeze' Date is Moved Back

By Teletype
NPN News Bureau

WASHINGTON, Feb. 3.—Price base for refined products has been moved back from Nov. 7 to Oct. 1 in Price Schedule No. 88 which establishes maximum prices for crude and its products at virtually all levels except retail, Office of Price Administration announced late today. Oct. 1 is also price base for crude.

OPA said this schedule, which is a "formalization" of previous oil price letters and requests from Price Administrator Henderson, covers all types of petroleum and petroleum products except asphalt, industrial lube oils, industrial naphthas and solvents, greases and specialty products such as household oil and spot remover.

Text of the maximum price order was not to be available until sometime Feb. 4. Broad details were contained in an official announcement in which Mr. Henderson said:

"One change from current price establishment practices is the setting of Oct. 1, 1941, instead of Nov. 7, 1941, as the base for refined petroleum products."

He explained that this was done to conform with price control act, which requires that consideration be given to prices prevailing between Oct. 1—15. He expected "Relatively few changes in prices . . . since prices as of Oct. 1, 1941, and Nov. 7 are in general at the same level."

Mr. Henderson said various price actions of OPA are consolidated in a single formal price schedule to clarify the price policies of OPA and to protect the industry and the public from the effects of unwarranted price increases.

OPA said price of refined products is to be "determined by the lowest posted or quoted prices published in the first issues of designated trade journals (which were not specified in this announcement), on or after Oct. 1, 1941".

"Where no price was published in those issues for a product in a particular market", OPA added, "the price applicable to the last sale prior to Oct. 15 will govern. In the event that the price cannot be determined by either of these methods, the maximum shall be the actual price prevailing at the point in question on Oct. 1."

All Types of Transactions Included

OPA said the prices include those "on all domestic, export and import transactions, sales, transfers, exchanges or purchases of crude petroleum, and all domestic, export and import transactions, sales, transfers or exchanges of petroleum products involving contract, bid or spot sales of crude petroleum at the well, the gathering point, tank car or tank farm or terminal and of petroleum products for cargo or barge shipment, harbor, refinery, terminal, tank car, and tank wagon delivery."

The price office also said the schedule embodies formal ceiling prices on various products on which either informal or formal arrangements are in effect.

States Conform To OPC Quotas

NPN News Bureau

TULSA, Feb. 2.—Despite the fact that crude nominations have been higher, southwestern oil producing states are following Office of Petroleum Co-ordinator's recommended production rates.

Following table compares OPC's recommended rates with actual allowables issued by state regulatory authorities:

OPC Recommended Quota

	February	January	February Allowable
Texas	1,596,000	1,573,500	*1,606,439
Oklahoma	395,300	415,700	395,300
Louisiana	335,000	329,300	344,955
Kansas	251,700	259,900	251,700
New Mexico	119,300	121,200	119,300
Arkansas	74,500	73,700	†

*Estimated allowable production 1,543,788; 3.9% of allowable will not be produced. †Report not available.

* * *

Special to NPN

DENVER, Feb. 2.—Following Petroleum Co-ordinator Ickes' comment at his press conference last week that the protest made by Gov. Ralph L. Carr against Colorado's crude production quota was "a minor political problem", Warwick M. Downing, chairman of the Colorado Gas Conservation Commission, said he was "sure" Mr. Ickes had been misquoted or misunderstood.

Mr. Downing said "Probably the trouble is that Colorado's production has very recently increased materially; Gov. Carr had the late figures, whereas the co-ordinator's office was some months behind. Certainly Gov. Carr is to be congratulated for being alert to the interests of the oil producers of his state."

Gov. Carr, who has not received a reply from Mr. Ickes, has declined to comment further on the matter.

Does War 'Break' Lease On Station Property?

NPN News Bureau

LOS ANGELES, Jan. 31.—Several oil company suits are being prepared to test whether they can "break" their leases with land owners on grounds that the Army has shut off roads around defense plants which in turn has deprived the service station of the business for which the land was leased.

Similar suits are being prepared by tire dealers whose contention will be that tire rationing has made it illegal to sell their merchandise (except in very limited numbers of cases). This, they contend, releases them from their lease obligations.

Night-Closing of Stations Adopted by Many Retailers

Special to NPN

MILWAUKEE, Feb. 3 — Ninety-five per cent of Wisconsin's 6000 service stations closed at 7 p. m. last night in compliance with the voluntary curfew suggested by the Retail Gasoline Dealers Assn. of Milwaukee, L. M. Faber, executive-secretary of the association, said today.

About 98% of the stations within Milwaukee were closed, Mr. Faber said.

Stations that remained open last night "did not do any business", he declared. "The public is the boss, and it is cooperating 100% with us."

Other Wisconsin oil men made the same comment. One jobber said stations remaining open "had such weak arguments for doing so that the public just overlooked them and stopped buying at 7 p. m."

* * *

NPN News Bureau

CLEVELAND, Feb. 3 — First night of a voluntary station curfew at 7 p. m. is set for Feb. 9 throughout Cuyahoga County (Cleveland area). Over 200 dealers met here last week and mapped plans for the night-closing, many of them anxious to initiate the move immediately. Customer reaction to announcements of the closing has been very favorable, dealers say. Standard Oil of Ohio, principal major marketer in the area, has been noncommittal on its plans.

* * *

NPN News Bureau

LOS ANGELES, Feb. 2—District 5 marketing committee has again recommended night-closing of service stations throughout the Pacific Coast. Petroleum Co-ordinator Ickes rejected the committee's first recommendation, saying he did not consider night-closing necessary except in "defense areas" along the coastline. So far, Co-ordinator Ickes has not replied to the second recommendation, but an answer is expected shortly.

Storage is piling up on California refiners who have been

(*Continued on page* 4)

Night-Closing of Stations Adopted by Many Retailers

(*Continued from page* 3)

cut off from shipments into Canada and the Pacific Northwest due to enemy submarine attacks on tankers. Providing substitute transportation is difficult, primarily because of single-track railroads in the northwest area, and the amount moving in by rail is small compared with consumption. Some tankers were reported to have gotten through last week, relieving the situation temporarily. Northwest subcommittee is watching stocks on a day-to-day basis, with power to start rationing when considered necessary.

Several of the smaller communities in the state have announced that they are already observing a night-time curfew. Most notable among these are Bakersfield which reports most stations closing from 7 p.m. to 7 a.m. and Santa Barbara, where the local gasoline association has voted to close from 6 p.m. to 6 a.m.

It is reported that on a statewide survey of service stations about 90% are in favor of some sort of night-time curfew.

* * *

Special to NPN

OKLAHOMA CITY, Feb. 3 — Signs have been distributed and are being displayed by most of Oklahoma City's service stations announcing new hours from 7 a. m. to 7 p. m. "for the duration". The curfew, adopted as a voluntary measure by members of the Petroleum Retailers Assn. of Oklahoma City, is being followed almost 100%, J. R. Atchison, secretary of the association, says.

* * *

NPN News Bureau

CHICAGO, Feb. 3 — Night-closing of service stations in Chicago suburbs of Aurora, Maywood, and Bellwood was almost 100% Feb. 1 and 2, spokesman for Gasoline Retailers of Metropolitan Chicago said today. Chicago's Mayor Kelly has returned to the association an ordinance requiring compulsory closing from 7 p.m. to 7 a.m. The association is now studying it to determine its "constitutionality" and will present it to the city council meeting Feb. 11.

* * *

Special to NPN

PHILADELPHIA, Feb. 2 — Mandatory 7 to 7 nation-wide station curfew is urged in a resolution passed at a meeting here of the Eastern States Gasoline Dealers Conference. (*For more details, see p.* 12).

Posters Distributed

Retail Gasoline Dealers Assn. of Milwaukee, distributed this 14 in. x 21 in. sign to promote 7 to 7 station curfew. Poster was printed in red and blue on white paper. Ninety-five percent of Wisconsin's and 98% of Milwaukee's stations observed closing time, according to dealer leaders.

War Causes Change In W.P.R.A. Meet

NPN News Bureau

TULSA, Feb. 2. — Western Petroleum Refiners Assn. will meet for one day only at some central point such as St. Louis, Kansas City or Tulsa, instead of for 3 days (March 23-25) at New Orleans as originally planned, directors of the association decided this week.

The one-day session will be devoted to business, with only one speaker—an oil official from Washington—on the program. Decision to hold such a short annual meeting is "in keeping with sacrifices that organizations, as well as individuals, should make in these days of wartime stress," J. C. Day, secretary-treasurer, said.

Urges Lighter Weight Burners To O. B. I. Directors

Special to NPN

PHILADELPHIA, Jan. 31.—Case for development of lighter weight oil burner models in interest of metals conservation was presented by Office of Price Administration representative John Schulz at regular quarterly session of Oil Burner Institute directors held here Jan. 27. Meeting, attended by a number of members, went on record assuring Washington of intent to co-operate in every way possible in the job of defeating the Axis.

Canada's 'Gas' Ration Plan May be Tip-off on U. S. Move

Special to NPN

OTTAWA, Jan. 31.—Coupon rationing of gasoline will start in Canada April 1, C. D. Howe, minister of munitions and supply, announced yesterday. *(NPN reported this over a month ago: NPN Dec.* 17, *p.* 26 *—Ed).*

Whether this move is a forerunner of similar action in the United States could not be learned here. However, Canadian Oil Controller George R. Cottrelle has recently been in conference with officials of the Office of Petroleum Coordinator in Washington, D.C.

Under the plan announced here, Canada's passenger cars will be allotted gasoline in proportion to their usefulness in wartime and in proportion to their brake horsepower. Trucks, including farm trucks and farm and industrial machinery, truck tractors, buses, ambulances, taxicabs and commercial motorcycles will not be rationed. The same applies to vehicles owned or operated by companies operating flying schools under the air-training plan and to officials of dominion, provincial, county and municipal governments.

To Classify Vehicles

Every motor vehicle in Canada will be designated as belonging to one of seven categories. In the preferred categories will be vehicles used for essential purposes. In Category "A" will be all cars privately owned and driven for non-essential purposes. These will be limited to enough gasoline to run them about 5400 miles yearly.

Passenger cars are divided into three classes according to brake horsepower, but each, if in Category "A", will be given enough gasoline to run only about 5400 miles annually. One-third of the annual gasoline allotment may be purchased in the holiday months of July, August and September.

Each rationing coupon book will permit the purchase of a designated number of units of gasoline, according to the category of the car for which it is issued.

At the outset, the unit will be 5 gal., but the purchaser can turn in half a coupon if he wants to purchase only 2.5 gal. The number of gallons per unit may be changed from time to time by the oil controller in accordance with the supply of gasoline.

Rationed Proportionately

Those in the non-essential Category "A" will be allowed to purchase 60 units or 300 gal. a year if they drive a light car. Those driving heavier cars will be allowed proportionately more in order to be able to drive about the same distance.

To obtain a ration coupon book, the car owner must fill out an application form and submit it along with his 1942 motor vehicle license. He has to pay $1 for the privilege of his gasoline registration. Issuing of the coupons will be done by provincial issuers of motor vehicle licenses.

No mention is made in the regulations for supplying American or other tourists in Canada, but it is expected that those who come to stay longer than 48 hours will be given the same privileges as Canadian motorists in the non-essential Category "A".

Oklahoma Group Asks Relief From Rubber Shortage

Special to NPN

OKLAHOMA CITY, Feb. 2—Petroleum Marketers Assn., Inc., of Oklahoma has protested in a wire to President Roosevelt loss of business caused by rubber shortage and is asking relief. Marketers group points out that, despite shortage, "government contractors" are using latex rubber for spacer joints in concrete runways.

Text of wire signed by C. H. Biggs, manager, follows:

"Dear Mr. President:

"The petroleum industry is suffering fifty per cent loss of business because of rubber shortage. Refineries overstocked with gasoline. Many filling stations being closed. Government contractors using latex rubber for spacer joints in concrete runways instead of tar and asphalt resulting in rubber shortage, waste and tax loss. What relief could be given?"

Roeser Heads Scrap Drive In Southwestern Area

Special to NPN

FORT WORTH, Feb. 2. — Charles F. Roeser, Fort Worth, general chairman of OPC's District 3 committee, has been named chairman of Texas Mid-Continent Oil & Gas Assn.'s drive to collect scrap metal and rubber in the oil industry. In accepting this appointment, Mr. Roeser said he was enlarging the drive to cover all 6 states of District 3 since "collecting of the scrap of the oil industry is too important to confine merely to Texas".

NPN Reports from

WASHINGTON

In NPN's Washington Bureau:
Warren W. Burns
O. H. Knight

News for ALL branches of the Oil Industry from NPN's own bureau

NATIONAL PETROLEUM NEWS
803-805 National Press Bldg.,
Washington, D. C.
Telephone: NAtional 3478

Ickes: States Must Comply With Federal Crude Quotas

Petroleum Co-ordinator Ickes isn't going to have much patience with protests from oil-producing states against the monthly production quotas "recommended" by his office, his latest statements indicate. Sharp words used by Mr. Ickes hint that he has some "big stick" to use against states which do not fall into line with OPC's ideas of how much oil they should produce. So far, however, nature of Mr. Ickes' "club" has not been disclosed.

Statement Quoted

In his latest statement (Jan. 30), Mr. Ickes said:

"It is extremely essential, from the standpoint of promoting the war effort, that the petroleum production rates certified for each oil-producing State by the Office of Petroleum Co-ordinator be met by every State without delay.

"The imperative need of assuring the Nation of an adequate continuous supply of petroleum products for all military and essential civilian requirements on a sustained basis no longer permits the haphazard participation by States in supplying the national demand.

"Any State that might persist in exhausting its petroleum resources at an abnormally rapid rate would seriously jeopardize the war program. Premature exhaustion of any one State's resources would only throw an undue burden on the other States at a time when the need for petroleum will be even more critical than now.

"The urgency of the present situation prohibits all considerations save full co-operation in the present national program to attain maximum utilization of the Nation's natural resources—not for the first year of the war alone, nor for the second, but for as long a period as the present conflict may last."

Hits Colorado Protest

Another indication of how strongly Mr. Ickes feels about state production quotas was revealed at his press conference this past week when he labeled protests by Colorado's Gov. Carr "a minor political problem." Later he supplemented this by stating that "we have no patience with that provincial viewpoint." Gov. Carr protested that OPC's recommended crude production rates were too low. (*NPN Jan. 28, p. 20*).

Supplementing Mr. Ickes' statement on subject of state certification (each state receives a certificate from OPC as to amount it should produce monthly—for example of certificate, see NPN Dec. 24, p. 7), Deputy Petroleum Co-ordinator Davies said:

"This involves taking into consideration not only the market demand for production by states but also the relative crude oil reserve position of each state and the rate at which such reserves are now being depleted. To make such a program successful it is necessary to view the problem of crude petroleum supply in its national aspects. Only by attacking the problem in its national scope may we be assured of the co-ordinated functioning of the petroleum industry necessary to meet the rigid requirements imposed by the defense program."

OPC Explains

OPC's explanation of state certification production figures follows:

"1. Consideration is first given to the indicated current market demand for production from each of the several States. The determination of demand is made by the same method as were the Bureau of Mines' forecasts, publication of which has been suspended for the duration of the war.

"2. The amounts under (1) are adjusted by considering the relationship of the known reserves of each State to the known crude oil reserves of the Nation, giving prior recognition to stripper production.

"By considering the factors determined under (2), recognition is given to the relative ability of the various sources of supply to produce on an efficient and sustained basis in addition to considering current demand for production in any given State. Under the certified rates a greater degree of production efficiency will be realized than if the production rates were based upon demand alone, and, therefore, each State will be in a better position to maintain its proper contribution in meeting the national requirement for petroleum."

Need New Reserves

The importance of discovering additional oil reserves was emphasized by Mr. Davies, who said this must be understood to understand completely the basis on which OPC determined its certifications. He said:

"The inability to predict the duration of this war makes it imperative that we balance our current operations in order to maintain the crude oil reserves of the nation in such condition that we will be able to provide an ample supply of petroleum in the last critical stages of the conflict as well as at present.

"When this fact is emphasized time and again, as it has been recently, it does not imply that an immediate shortage of petroleum exists," he said. "By the same token it does not imply that production rates need be increased except as the Nation's future requirements may indicate. Quite to the contrary, the urgent need for additional discoveries in order to insure an adequate supply for all possible future needs emphasizes the importance of devoting even greater attention to the production of presently known reserves on a more efficient sustained basis than has been adhered to in the past."

Oil Situation 'Tightens Up' On East Coast, Says Ickes

"What about gasoline rationing?" is now a wartime question and in wartime tradition, nobody in the Office of Petroleum Co-ordinator will answer it.

Petroleum Co-ordinator Ickes is no exception. In fact, he is so disinclined to discuss the topic—recalling his oil "shortage" experience of last summer—that he told his press conference this past week that "anyone who wants to take care of (gasoline) rationing" can do it—but not for him.

However, the Co-ordinator admitted that the East Coast oil situation "is tighter than it was" due largely to enemy sinking of an increasing number of tankers and diversion of others to the West Coast.

Asked specifically if he looked for return of the 7 p.m. to 7 a.m. service station closing and return of the oil "shortage", he said "wait and see".

Crude Line Discussed

While saying nothing definite on revival of plans for a crude pipeline from East Texas to the North Atlantic area, he saw it as a possibility and replying to a question as to where crude would be going now if such a line had been built last fall, he replied, in the Mid-West. (Original plan for the 1520-mile crude pipeline from East Texas to New York and Philadelphia areas, was to build it to Wood River, Ill., and then to East Coast—Ed.).

Asked about Trans-American's crude pipeline plans, Mr. Ickes' only comment was that he'd been wondering why he hadn't seen Aldace Walker, Tapco official, lately. (This line was proposed from Wichita County, Tex., to Savannah).

'Tankers Needed for Imports'

The Co-ordinator spiked rumors that steel might be taken from present tanker program to build pipeline, stating that "we must have more tankers to bring oil into U. S. from South America and other oil producing points". He also saw need for more tankers to aid Russia, England, Far East, Alaska and West Coast.

Speaking about the West Coast, he deplored fact that only single tracks ran along much of this area and said problem was greater use of tank cars out there.

Rationing Discussed By War-Oil Council

WASHINGTON, Feb. 3.—Discussion of many far-reaching wartime problems affecting the entire petroleum industry were considered at first day's meeting today of Petroleum Industry Council for National Defense. Total of 59 of the council's 72 members were present.

Highlight of Feb. 3 morning session was the brief addresses by Rep. Wm. P. Cole, Jr., Md., chairman of House oil investigating subcommittee and Rep. Clarence F. Lea, Calif., chairman of House Interstate Commerce Committee.

Both congressmen complimented P.I.C.N.D. on its co-operation with Petroleum Co-ordinator Ickes and his staff in working out wartime problems.

Upon leaving the industry council meeting, Congressman Cole was asked by NPN if his committee was gathering data on 100-octane gasoline and synthetic rubber. Mr. Cole acknowledged that such was the case. But he had nothing further to say. Some sort of hearings on these two war-essential products by Mr. Cole's committee are planned, according to information from other sources.

Meeting to Last Several Days

Morning session on Feb. 3 was devoted mostly to procedure but it was expected that during the next several days there would be discussed many vital topics, such as rationing of petroleum products, arming of tankers and convoying.

Location of another OPC district office, soomewhere in the Southwest, was urged by one council member.

Changing the name of the council to "Petroleum Industry War Council" may be taken up, one source said, adding that some members want also to discuss the following points:

Membership of council standing committees on marketing, refining, transportation, production, sabotage protection, petroleum economics and natural gas and natural gasoline.

A special marketing committee to report on P-98 and M-68-C and a special production committee on P-1 and M-68.

Special P.I.C.N.D. committee to study ways and means for increasing oil reserves and preventing premature abandonment of stripper wells.

Manufacture of synthetic rubber and part oil industry to play.

Problem of transportation situation, with particular emphasis to conditions on East and West coasts, as well as tanker war risk insurance.

W. Alton Jones, president of Cities Service, is slated to report on product conservation. Jones is chairman of special committee on product conservation.

Exact relationship of P.I.C.N.D. to OPC, and other government agencies as well as to national conference of petroleum regulatory authorities, first meeting of which has not been announced, is expected to be clarified.

Activities of district committees is another topic to be reviewed as well as suggestions from Deputy Co-ordinator Davies as to what is expected of P.I.C.N.D.

Regional directors' authority and their relationship to district committees may also be clearer by time February meeting of P.I.C.N.D. is over.

Additional 6 members of P.I.C.N.D., bringing membership to 72, are: D. P. Hamilton, Shreveport, president of Root Petroleum Co., and the 5 district chairmen of natural gas and natural gasoline committees which follow:

District each represents is in parenthesis. J. French Robinson, Cleveland (1); Burt R. Bay, Omaha (2); Neil McGowen, Shreveport (3); Robert W. Heridee, Colorado Springs (4); and William Moeller, Los Angeles (5).

New Price Bill Signed by FDR

President Roosevelt has signed the "Emergency Price Control Act of 1942" and has nominated —as was expected—Leon Henderson to administer the new law, which went into effect Jan. 30 and ends June 30, 1943 unless terminated sooner by the President.

Price Ranges Unchanged

Meanwhile, reports from various markets indicate that ranges of published price quotations were generally unchanged, with the companies making the "highs" still reporting that they were studying OPA's Jan. 17 letter to see how it affected them. Apparently, some refiners were awaiting issuance of OPA's "formalized" version of the Jan. 17 letter to see if it gave them any clearer view as to where they stood.

Allan Hand Named Defense Council

From assistant director of transportation in Office of Petroleum Co-ordinator, Allan H. Hand joins the Petroleum Industry Council for National Defense as its secretary-treasurer. Announcement was made this past week by P.I.C.N.D.'s Chairman William R. Boyd Jr.

Allan H. Hand

Mr. Hand's appointment "was based in large measure upon the diversity of his experience, especially during the latter years of his service with the Union Oil Co. of California," P.I.C.N.D. states.

Since last August, Mr. Hand has been with OPC and prior to that time was with Office of Price Administration as a temporary consultant on petroleum matters. Later, he was chief of OPA's petroleum unit of the fuel section in the price division.

30-Year Oil Background

With a background of 30 years in the oil industry, Mr. Hand's experience includes work with California Union as assistant comptroller, brokerage of crude and petroleum products, transport oil trucking, wholesale distribution of gasoline to independent service stations, work on California's voluntary curtailment program as well as having served in several capacities on Pacific Coast industry committees. For 5 years, he was Pacific Coast representative of American Petroleum Institute Committee of Economics and Statistics. In the code days he worked with NRA.

Price Ceiling On Used Drums Again Revised

Revision of the price schedule for used steel barrels or drums, to make the maximum prices applicable only to three types of drums and allowing deduction from the maximum delivered price when the purchaser picks up the drums from the dealer, was announced this week by Price Administrator Henderson.

He said the maximum prices (*NPN, Nov. 26, p. 13*) apply only to those of 50 to 58-gal. capacity; 29 to 33-gal. capacity; and 14 to 16-gal. capacity. These 3 types make up 98% of all the drums in use. Ceiling price also was extended to any purchaser, instead of only the user and reconditioner as before.

These changes were incorporated in Amendment No. 2 to Price Schedule No. 43, signed by Mr. Henderson on Jan. 30 and effective Feb. 2.

Schedule follows:

(a) **Maximum prices for reconditioned drums.** The maximum prices for a reconditioned drum, delivered to the purchaser, shall be as follows:

14 to 16 gallons, inclusive...$1.45
29 to 33 gallons, inclusive... 1.85
50 to 58 gallons, inclusive... 2.25

Additional charges. Charges per drum in addition to the above may be made as follows:

(1) Where a reconditioned drum is delivered in excess of 50 miles from the shipping point, the lower of the following alternative charges may be added:

(a) Actual cost of transportation from the shipping point, or
(b) For each 75 miles or fraction thereof in excess of 50 miles from the shipping point:

14 to 16 gallons, inclusive .5 cents
29 to 33 gallons, inclusive .7½ cents
50 to 58 gallons, inclusive .10 cents

(2) Where a raw used drum is reconditioned and delivered in the States of California, Washington and Oregon:

14 to 16 gallons, inclusive .15 cents
29 to 33 gallons, inclusive..25 cents
50 to 58 gallons, inclusive..50 cents

(3) Where a drum which is lined has been reconditioned so that it is suitable for use as a food container without any further reconditioning process and is sold for use as a food container:

14 to 16 gallons, inclusive..15 cents
29 to 33 gallons, inclusive..20 cents
50 to 58 gallons, inclusive..25 cents

(b) **Maximum prices for raw used drums purchased direct from the person who empties the drums.** The maximum price for a raw used drum purchased direct from the person who empties the drum, f.o.b. the place where the drum is emptied, shall be as follows:

14 to 16 gallons, inclusive...$ .75
29 to 33 gallons, inclusive... 1.00
50 to 58 gallons, inclusive... 1.25

provided that a charge per drum in addition to the above may be made where the raw used drum is purchased and delivered in the States of California, Washington and Oregon as follows:

14 to 16 gallons, inclusive..10 cents
29 to 33 gallons, inclusive..20 cents
50 to 58 gallons, inclusive..40 cents

(c) **Maximum prices for raw used drums other than in paragraph (b).** The maximum prices for a raw used drum, delivered to the purchaser, other than those purchased direct from the person who empties the drum, shall be as follows:

14 to 16 gallons, inclusive...$1.00
29 to 33 gallons, inclusive... 1.30
50 to 58 gallons, inclusive... 1.60

(i) Provided, that where a raw used drum is picked up by the purchaser a deduction shall be made from the above as follows:

14 to 16 gallons, inclusive..5 cents
29 to 33 gallons, inclusive.7½ cents
50 to 58 gallons, inclusive..10 cents

and (ii) **Provided further,** That a charge per drum in addition may be made where the raw used drum is purchased and either delivered or picked up in the States of California, Washington and Oregon as follows:

14 to 16 gallons, inclusive..10 cents
29 to 33 gallons, inclusive..20 cents
50 to 58 gallons, inclusive..40 cents

WPB Continues Priorities; PD-1A Forms Now Approved

All priority orders were continued in full force last week by the new War Production Board when it delegated authority to the Division of Industry Operations to administer the priorities system and gave Office of Price Administration full power to ration all goods and commodities at the retail level.

Regulation No. 1 of WPB gave James S. Knowlson, director of the Division of Industry Operations, the authority to operate the priorities system, and said specifically:

"All existing rules, regulations, orders, directions, certificates and other actions of the Director of Priorities of the Office of Production Management are hereby ratified and confirmed and shall remain in full force and effect until they expire by their terms or are revoked or amended."

Regulation No. 2 gave Mr. Knowlson authority to administer regulations under requisitioning acts.

By issuance of Priorities Regulation No. 4, Mr. Knowlson validated all preference rating certificates issued by the former Division of Priorities. The regulation said:

"All preference rating certificates which have been or which may hereafter be duly issued over the facsimile signature of Donald M. Nelson as Director of Priorities are valid and shall continue valid in effect until termination or expiration by the terms thereof or by the circumstances or conditions of their application, or until hereafter cancelled, modified, changed, or amended by the Director of Industry Operations."

Priorities will be directed by C. H. Matthiessen Jr., of Pasadena, appointed Jan. 24 as Chief of the Bureau of Priorities.

WPB Regulations Nos. 1 and 2 and Priorities Regulation No. 4 were signed on Jan. 26.

OPA's Authority Defined

With the approval of President Roosevelt, WPB Directive No. 1 was issued, giving OPA full authority to ration all goods and commodities sold at retail as well as any products sold to ultimate consumers for personal use.

The directive clearly delineated between the authority to ration products to civilian and industrial consumers. Allocation of materials and supplies for war production was retained by WPB, to be administered by Division of Industry Operations under existing priorities system.

Nor does OPA have authority to control acquisition of products for Army, Navy, specified government agencies, or persons acquiring products for export to foreign countries.

WPB Will Advise OPA

To make complete the distinction between civilian and war uses, WPB will from time to time advise OPA as to the portion of existing products which is available for rationing to consumers.

Chairman Donald M. Nelson of WPB reserved the right to amend the delegation of authority.

Petroleum Co-ordinator Harold L. Ickes said last week the rationing of gasoline is a job anyone may have for the asking, but he does not want it. Mr. Henderson, who already is rationing tires and preparing to dole out automobiles and sugar, apparently has the requisite authority.

PD-1A Use Mandatory March 2

Meantime, the effective date for use of the new PD-1A application forms for individual preference ratings passed. Use of the new form, which will not be available in quantity before the middle of the month, became permissible on Feb. 2. It becomes mandatory on March 2.

PD-1A is the successor to PD-1 under terms of Priorities Regulation No. 3, issued Jan. 12, which consolidated forms PD-1 through PD-5 into forms PD-1A and PD-3A. Ratings granted on both forms may now be extended to suppliers and sub-suppliers by a simple endorsement on the purchase order. In the past, ratings assigned on PD-1 forms could not be extended under any circumstance and ratings assigned on PD-3—the Army and Navy contract forms—could not be extended without countersignature of an authorized government officer when the amount involved was more than $500.

Oil Can Output Cut 50 Percent

Sharp curtailment of the use of tin for petroleum products cans was ordered last week by the War Production Board.

A telegraphic order to all can manufacturers stipulated that February output should not be more than 50% of the total quantity of tin and terne plate used in February, 1940. The order restricted output for the rest of January to 12½% of the quantity permitted under the order for February.

Other cans affected to the same degree are beer, baking powder, biscuits, candy and confectionery, cereals and flour, chocolate and cocoa, coffee, dog food, spice and condiments, and tobacco.

Oil cans used 275 tons of tin in 1941, the board said.

'Only the Beginning'

"This is only a first step," said Walter Shorter, chief of the containers branch. "A general order regulating the manufacture of all tin cans is now being prepared and should be out shortly. This preliminary step is being taken to reduce at once the use of tin cans for products that can be packed in other containers."

Retail Accounts Thawed Out; Outgoing Supplier Must Sell

Gasoline dealers changing suppliers have been granted a 60-day period of grace, under M-68-C, in which they have the option of buying their outgoing supplier's loaned equipment or arranging for its purchase by outside sources (including the incoming supplier).

The grace period is provided in OPC's Recommendation No. 30, signed Jan. 9 and effective until further notice. It provides that the dealer may use any installed equipment for 60 days after switching suppliers.

Thus, the service station "freeze" is off. This "freeze" resulted from issuance of Conservation Order M-68-c (*NPN Jan.* 14, *p.* 12 *and Jan.* 28, *p.* 16) which prohibited installation of equipment at stations by incoming suppliers but allowed outgoing suppliers to pull their equipment.

Principal provisions of this recommendation are:

"No person having the right to remove from the premises of any operator any material operated by such operator, whether by reason of the termination of a supply arrangement at the election of either, or for any reason, shall do so until he shall have given reasonable notice in writing, not less than thirty days, of his intention so to remove such material, or until he shall have received the prior consent in writing of such operator."

Sell at 'Reasonable' Price

"Any operator having received notice from any person . . . to remove any material shall have the option for the period fixed in the notice, but not more than sixty days from the giving of notice, to purchase or complete the purchase, or procure another person to purchase or complete the purchase, of the material covered by such notice, and on the exercise of such option, such person shall sell or complete the sale of the material covered thereby in accordance therewith at a reasonable price based on original cost less reasonable depreciation. During any such option period, the operator shall have the right to use the installed material and to authorize its use by any person for the purpose of supplying the operator with petroleum."

This recommendation was signed by Deputy Petroleum Co-ordinator Davies and approved by Assistant Attorney General Arnold. It is recommendation No. 30.

Davies Comments

Commenting upon this recommendation, Mr. Davies said:

"It is quite apparent that the removal of materials by the person supplying those materials for the period of an account relationship may prevent an operator from operating even through new sources of supply unless he can procure materials pursuant to an exception in Conservation Order M-68-C.

"The order does not, however, prohibit the sale of equipment already installed at a given location and it is to emphasize this fact and to provide a measure of assistance to operators that today's recommendation is issued."

P-98 Changes Being Drafted

Amendments to cancel countersignature requirements and otherwise liberalize some provisions of P-98, the general priorities order for the oil industry, are being drafted by the Office of Petroleum Co-ordinator.

Some changes are also expected in M-68-C, the order limiting use of oil marketing equipment and banning new construction or expansion except in a few limited cate-

OPC Lawyer Will Clarify New Orders on Equipment

To Members of Oil Industry:

"In order to clear up the oil industry's conception and misconception of the two recent equipment orders, Elmer E. Batzell, attorney, legal division, Office of Petroleum Co-ordinator, in response to a request today, said that he would be only too glad to visit various cities as quickly as possible and explain to gatherings of oil men about these orders. He said he could start in a week or ten days, probably. State jobber, producing and refining associations wishing to get him on their schedules for spring conventions should get in touch with him at once at his address, Room 6424, New Interior Building, Washington, D. C. Any others who wish to arrange meeting should do likewise. The writer urges that the greatest use possible be made of Mr. Batzell's willingness to tell the story of these orders and in fact, other OPC orders to the oil industry. The industry knows too little about who makes these orders and why. What the official thinking is at Washington and the best way to learn is to have this personal contact. Mr. Batzell's trip will make that personal contact possible. The writer urges that this will be one of the best public relations features between the government and industry."

Warren C. Platt.
Washington, Jan. 28, 1942.

How to Get Exemption on Equipment Installed for Defense Contractors

Order M-68-C prohibiting the installation of oil marketing equipment, except in certain cases, has prompted a flood of applications to Office of Petroleum Co-ordinator from oil companies wishing to install pumps, tanks and other dispensing equipment for contractors on defense jobs. Sometimes there have been applications from several oil companies covering the same project.

To avoid any duplication of equipment installations, Joseph H. Ellender, senior marketing analyst in OPC, advocates the following procedure which, he told NPN, will facilitate handling of these exemption applications:

Contractor in charge of the defense project should indicate what equipment is needed to adequately service his job and whom he desires to supply the equipment and furnish him with petroleum products. Certification on this point should accompany the application sent to OPC.

Mr. Ellender pointed out that this policy leaves it up to the contractor to determine how much equipment is needed and which supplier or suppliers should provide the equipment and supply the products. In other words, the contractor can give all of his business to one oil company or distribute it among a dozen companies. If there were several companies furnishing petroleum products, each could install such equipment as the contractor thought necessary.

Joseph H. Ellender

OPC has not the power, Mr. Ellender said, to require that the contractor buy exclusively from one oil company. Nor can the OPC require that all of the oil companies on the project dump their products into the same tanks.

Ellender Named Senior OPC Marketing Analyst

Joseph H. Ellender, formerly special liaison agent between Office of Price Administration and Office of Petroleum Co-ordinator, is now senior marketing analyst in OPC's marketing division.

Prior to working for OPA, Mr. Ellender spent 4½ years with Lehman Corp. in New York City and for preceding 7 years, he worked with following oil companies: Shell, Humble, Gulf and Crown Central. Serving in various capacities he gained practical experience in every department except pipeline.

Mr. Ellender's new work consists of being temporarily in charge of motor fuels and their general distribution.

Recap Equipment to be Rationed; Tire Dealers Seek Sales Monopoly

Geographical rationing of retreading and recapping equipment so that all sections of the country may have facilities for tire renewal is planned by the War Production Board.

Meanwhile, 11 manufacturers of tire renewal equipment have received telegraphic instructions not to make any more shipments of such equipment unless purchase orders are accompanied by a priority rating. Up to now, some of these manufacturers have been selling equipment to oil companies and others without a preference rating. "Stop shipment" order was effective on January 31.

Tire Dealers Seek 'Monopoly'

Independent tire dealers are making a determined drive to have tires sold only through them, it was learned here. Tieing in with this move, perhaps, was a report heard in congressional circles that the government is considering two plans for retail distribution of tires under the tire rationing plan. And either of these steps would eliminate from the tire business most of the service stations selling tires.

One plan would limit tire sales to "independent tire dealers" with the objective of taking such business away from retail outlets controlled by the major oil companies or the rubber companies. (As to tire sales at service stations owned or controlled by gasoline retailers, independent jobbers or independent refiners—the comment was: "Plans have not progressed far enough to decide this point.")

The other plan would remove tire selling from retailers whose predominant sales are of some commodity other than tires (gasoline is the predominant sales item at virtually all service stations). The theory seems to be that service stations can stay in business by selling gasoline and oil, while tire dealers have nothing else to sell except, in some cases, a few accessories.

OPA Denies Plan Studied

Although congressional informants insisted that these plans were being considered by government officials, a spokesman for Office of Price Administration (which is handling tire rationing) said he had no knowledge of "any such cockeyed plan" being studied.

The rationing program, the OPA spokesman added, does not entail putting anyone either in or out of business. He wanted to know what would happen in a community where tires were sold only by service stations or stores owned by tire companies, and where there were no "independent tire dealers".

Until a method of equitably distributing retreading and recapping equipment throughout the country can be devised, War Production Board sent a telegraphic order to 11 manufacturers telling them not to sell any more equipment except on the basis of a priority rating.

"It is expected that a formal order will be issued shortly putting into effect a distribution system designed to assure all localities of adequate equipment," the Board said.

The "stop" order was made necessary by uneven distribution of available equipment throughout the country, to such an extent that some localities have been unable to take care of requirements.

According to complaints received by the Industrial and Office Machinery Branch, WPB said, large companies have been purchasing "all available molds and sending many of them into localities already sufficiently supplied."

Manufacturers were ordered to submit by Feb. 2 a list of all orders on their books, including customers' names, shipping addresses, and types of equipment ordered.

Meantime, Price Administrator Leon Henderson, who has charge of tire rationing, announced that his field staff, plus 500 investigators of Wage-Hour Division, is looking at the stocks and records of all new-tire dealers to find out how many of them have violated tire rationing regulations.

While all tire dealers will have their records examined, those dealers against whom complaints have been made will be the first to receive a visiting federal agent, he said.

National Assn. of Independent Tire Dealers is circularizing its members to wire Mr. Henderson, Sen. James E. Murray, Dem., Mont., and Rep. Wright Patman, Dem., Tex., (who head the Senate and House Small Business Committees) to urge upon them the need of their assistance in having independent tire dealers "declared the only rationer of new tires . . . that big organizations have other things to sell."

N.A.I.T.D. also urged that recapping and retreading equipment be sold only to independent tire dealers.

N.A.I.T.D. claimed that "big interests are attempting to muscle in on the treading industry which was established by Independents who are still capable with present equipment plus installation of equipment in some parts of the country in shops of Independents to take care of all treading needed for Defense or Civilian uses," and charged that "large interests are securing more camelback than the Independent dealers."

Purchase of passenger molds only where there is an absence of such equipment in communities is recommended, because Government is said to be more in favor of truck tire reconditioning at present. The Association said it is "not interested in seeing major oil companies buy great quantities of treading equipment which is usually placed in communities where no additional equipment is needed to take care of the demand for treading that will exist after the rationing order on treading has been announced."

Even the Army, Navy and Marine Corps are taking steps to conserve crude rubber.

The Army, which is training a number of men in retreading and recapping tires, is establishing 10 field shops with capacity for recapping more than

gories, definitely tied up to the war effort.

One change has already been accomplished by OPC Recommendation 30 which did not amend M-68-C but "requested" that the outgoing supplier give the dealer 60 days in which to buy—or arrange for the incoming supplier to buy—the outgoing supplier's equipment at the dealer's station (*see news item* on *page* 8—*Ed*).

Another change expected is some provision for releasing equipment on order Jan. 14, which was "frozen" in supply company's warehouse by M-68-C, for use in completing stations already under way or for other purposes permitted by the limitation order (*See NPN, Jan.* 28, *p.* 16—*Ed.*).

To Pare Output 'Way Down

Representatives of the Cleveland Conference of oil marketing equipment manufacturers were in Washington during the past week conferring with OPC representatives on proposed changes in P-98 and M-68-C. They heard that the new War Production Board will soon announce a drastic cut in materials allowed for oil marketing equipment, perhaps a reduction of 90%. That is, marketing equipment manufacturers will be allowed only 10% of their last year's supply of materials for civilian oil marketing.

Materials Directors Named for 2 Areas

E. E. Robbins and Charles T. Reichert have been appointed district directors of materials for districts 2 and 5 respectively, Deputy Petroleum Co-ordinator announced this past week.

These men will be located in Office of Petroleum Co-ordinator's Chicago and Los Angeles Offices. Their duties will consist of assisting suppliers and oil industry in general to solve priorities and other problems relating to procurement of essential supplies, equipment and materials.

Since 1931, Mr. Robbins has been with Oil Well Supply Co. as sales manager for Tulsa area and adjacent states. In 1933, Mr. Reichert was general sales manager of Grant Oil Tool Co. of Los Angeles. Following employment for Petroleum Equipment Co. of Los Angeles, he joined National Supply Co. as sales engineer and manager of production equipment division.

1,000,000 tires a year, it was announced last week.

As part of the rubber conservation program, Undersecretary of War Robert P. Patterson announced that about 43,000 long tons of rubber will be saved during the next 2 years as the result of an agreement by the Army, Navy, and Marine Corps to accept for non-combat uses automotive tires manufactured from a modified compound containing a percentage of reclaimed rubber considerably greater than is at present being used.

But the Army also intends to save rubber in items other than tires. For instance, the rubber content of boots is being reduced from 62 to 47% and the rubber in face blanks for gas masks will be cut 20% without impairing the effectiveness.

* * *

Tire Executive Explains How to Keep Cars Rolling

NPN News Bureau

CLEVELAND, Feb. 2—Tires on most automobiles on the road today are good for another 18 months to 2 years of necessary driving, according to J. J. Newman, vice-president of The B. F. Goodrich Co.

More than 4,000,000 new cars were sold in the last 2 years. Tires on these are good for at least another two years, the rubber company executive pointed out. Last year, 1941, about 40,000,000 new tires were sold as replacements—proof that there are many thousands of miles in relatively new tires on older cars.

While it is possible to "look ahead to the continuance of the necessary use of our cars and trucks on the civilian front," according to the Goodrich executive, "such encouragement for the immediate future does not come from the synthetic plant building program." Only by a miracle can 400,000-ton capacity of synthetic rubber be completed by July 1, 1942, he said. And as for natural rubber, 97% came from the Far East normally. Other sources can be developed only slowly. So, he warned against a "false optimism" now that might prevent steps to forestall even more grave problems in the future.

Program Suggested

Answer to the problem of "keeping them rolling" is a program of conservation until additional rubber can be obtained from the Far East, from synthetic plants, from guayule, or from Latin America," said Mr. Newman, speaking Jan. 29 at a Boston meeting sponsored by the Goodrich company.

Prospect of keeping civilian cars and trucks rolling was stated by Mr. Newman, as follows:

"We believe the country has resources to keep most of our automobiles in condition for necessary service for from a year and a half to two years.

"We have about 27,000,000 passenger cars in use. More than four million were sold in each of the last two years. Tires on those cars, if given proper care, will be good for at least another two years.

"Last year—1941—about 40,000,000 tires were sold for replacement purposes, which was almost five million more than were sold the year before. This means there are many miles of wear in relatively new tires on older cars.

Tire Renewal Is Key

"To replace tires that will be giving out, we will have to rely on retreading and the purchase of used tires that still have mileage in them.

"Last year about 8,000,000 tires were retreaded and it is estimated that from 15 to 20,000,000 can be retreaded in the 4400 shops now in operation in this country. That means we can expect at least five million more tires than last year from this quarter, if camelback supplies for retreading are available. Camelback is the uncured tread rubber used in this operation. In fact, many million more tires could be retreaded in molds used for making new tires, if, again, we can make sufficient camelback.

"This is where the re-writing of specifications comes in, in relation to tires for civilian use. Under government rulings we are restricted in the amount of crude rubber, and the proportions of crude and reclaimed rubber we can use in camelback. We estimate that under these restrictions enough camelback will be made available in January and February to retread 640,000 passenger car tires and almost 1,000,000 truck tires.

"Then we have a stock of finished tires on hand, in manufacturers' and dealers' stocks. At the first of the year that meant about 2½ million truck tires and about 6 million passenger car tires.

"The total January quotas for the 48 states, the District of Columbia and our possessions, were 242,783 truck tires and 114,191 passenger car tires.

"From these figures you can generalize that truck tire stocks rationed at the same rate would last about ten months. Passenger car tires would last more than four years, but the average motorist does not get any at all. They are reserved for doctors, nurses, and others whose means of transportation must not be taken away. Of course, due to seasonal trends in the industry, January sales are not normally one-twelfth of a year's sales. But for all practical purposes those estimates serve as guideposts.

Must Collect Scrap Rubber

"As we go on, the trend will be to use more and more reclaim to stretch our reserve of crude. In 1941 there was produced about 285,000 tons of reclaim. It is estimated that present reclaim plants, if run seven days a week, 24 hours a day, could produce 330,000 tons in 1942.

"It is also estimated that there is enough scrap rubber available to get somewhere between 450,000 and 500,000 tons of reclaim per year, which would not be coming in until 1943, as it would take almost that long to enlarge present facilities. But I want to sound a note of warning here. Unless scrap rubber is collected in larger quantities, we are facing a much more dismal future. We will be depending heavily on reclaimed rubber, and we need scrap. An all-out and continual nationwide effort to collect scrap rubber is the keystone of our program to keep cars operating. This program will have to be a government 'must'."

HOW TO TEACH YOUR CUSTOMERS TO GET FULL MILEAGE from Their Tires And Continue Good Gasoline Customers

It is patriotic for your customers to use their cars judiciously in their normal and necessary pursuits.

Your customers may not be so using their cars because of fear that their tires will not last long.

But most tires still have several years, at least, wear in them and probably much more IF YOUR CUSTOMERS DRIVE CAREFULLY.

Few people know just how many miles tires will go WHEN THEY ARE PROPERLY CONSERVED.

But SOME CAR OWNERS have always driven carefully. They are the proof of long tire mileage.

Here is how to get that proof:

Set your service station attendants to watching for SMOOTH tires of their customers who they believe are careful drivers.

When such a driver comes to the station have your attendants ask him how many miles his tires have gone.

If the customer's tires have gone a rather unusual distance, get his name and the facts as to when tires were bought, exact mileage run AND WHAT RULES FOR CAREFUL DRIVING DOES THE CUSTOMER FOLLOW.

You, the jobber or bulk plant manager, collect this information at once from the station attendant and then have the customer called on by a salesman to get ALL THE DETAILS of this careful driving possible. ALSO, have the salesmen get a letter from the car owner testifying to the facts.

Post the names of such car owners, who through careful driving have gotten unusual mileage out of their tires. Put the names on a bulletin board at each station, especially in the car owner's neighborhood. Use the names in a folder and in local newspaper advertising to prove what careful driving will do. The fact that you are going to thus publicly announce such testimonials will cause the car owners to stick to the truth in their statements to you.

BUT EVERY CAREFUL DRIVER WILL BE PROUD TO BE ON YOUR LIST. Your publication of that list will attract others. Once such a list is obtained there are many stunts you can pull, give a simple prize to the car owner reporting the highest mileage for the week in a neighborhood or town; have a meeting, or even lunch, for your dealers, employes and some of the highest mileage owners; have the mayor thank the highest mileage tire owners. Give them an insignia to show on their cars.

These good mileage tire owners are the nucleus through which a real conservation drive for proper use of cars can be carried on, a drive that will teach proper and necessary USE of cars not storing them or hoarding the tires against some use in the distant future.

Tell us about such a campaign. Address
Tire Mileage Editor, National Petroleum News
1213 West 3rd St., Cleveland, Ohio.

THE Editor's PAGE

Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and publisher, Penton Building, Cleveland, O.

Oil Men Are Given The Chance To Manage Their Industry's Supreme War Effort

WASHINGTON—The business man, with his organizing influence, has been on the increase in this confusion of war preparation here, but it took the elevation of Donald M. Nelson to boss of war production to bring that fact out clearly. His frank admission—"I am willing to be the goat; I have everything to lose and nothing to gain"—set a standard new to Washington politics and gave heart to the thousands of business men who have been trying to work with the administration.

While immediate changes will be easily noticed, it still will take a long time to shorten much of the red tape by which a business man gets his contract, priority or other regulatory order.

One big improvement is that definite and what probably will be final objectives of war materials have at last been set. The Japs did that when they bombed Hawaii. Prior thereto, plans were always being changed, and not always upwards, as War and Navy Departments fumbled around as to who they were to fight and where.

Oil's Supplies Cut to the Bone

TODAY the plans are so vast that they call for raw materials and manufacturing capacity to the maximum that the country can give, even cutting into some heretofore "necessities".

Oil, recognized as a highly essential war industry, is now being carefully measured for the exact tons of supplies it will need to do its job and not have a ton over. Drilling will be fostered but only in the most efficient manner, with the fewest possible number of wells per one thousand acres; refining will get hundreds of thousands of tons of new metals but all figured exactly to give the greatest amount of 100-octane aviation gasoline, war lubes and synthetic rubber materials; marketing will be held pretty much to an "as is" basis with no new outlets of stations or bulk plants or terminals except as may be specially allowed for new gallonage in new areas.

However it is the plan of the administration to give the oil industry all the repair and replacement parts necessary to maintain a high degree of efficiency.

Oil equipment manufacturers have been taking on more war work for the past several years but now that the government has finally made its plans, even though they are still much in the rough, the equipment manufacturers are moving rapidly to 100% war work and still keep their old customers protected with parts and such new equipment as war may make necessary.

The advice that the oil man, particularly the oil marketer, is giving the automobile owner, on how to make both car and tires last longer, is advice that the oil man himself must take. The oil man must make his present equipment last and there will be no new equipment for expansion, nor will the oil man be allowed to expand even if he has the equipment, unless the government decides the expansion will help win the war, and government officials will be hard boiled about that.

Responsibility Mostly on Oil Industry

WITH business management given the top job down here, and business—and oil—told all facilities will be needed for war work, one finds that the oil industry has already made much headway toward the new standards and objectives. There will be expansion and streamlining of the oil set-up to take care of the increased demands made upon the industry, but the machinery is here and has been getting a work-out and has been steadily built up since last spring.

Right from the start of war preparations last spring, oil has been working in an industry set-up consisting of oil men and a few government men who learned about oil during the code days. The so-called "starry-eyed" New Dealers are conspicuously absent in the oil set-up.

That does not mean that the oil set-up is perfect or has functioned a full 100%, but it has certainly done a far better job with less confusion than some other government agencies. In fact, some of the confusion that has been blamed on the oil set-up should rightly be blamed on other agencies who have much to learn even yet about the oil industry.

This desirable oil industry set-up is due to Secretary of the Interior Ickes discarding the plan of a government board over oil which he used during the code, much to the consternation of the industry, and turning the government's job over to a practical oil man, Ralph K. Davies, as the deputy petroleum co-ordinator. Secretary Ickes has stood behind Mr. Davies in his picking the best men he could find for the various jobs in the Office of Petroleum Co-ordinator. A few, well-trained and able government career men were selected but the rest are all oil men, so that it is predominantly an oil man's show.

Supplementing the chief administrative offices of the petroleum co-ordinator are industry advisory committees that, as time goes on, will be made still more representative of the industry.

Above the advisory committees and independent of the administrator in its freedom to think and talk and to recommend or protest, is the Petroleum Industry Council for National Defense, which too is subject to adjustment to further industry representation. On this council are the top executives of the major oil companies, the operating officers of the leading oil industry associations and as chairman, is President Boyd of the American Petroleum Institute.

This is all there is to the country's and the oil industry's petroleum war set-up. It is all OIL and it certainly is NOT New Deal.

True, at the present time, this machinery is purely advisory. It cannot order anything done. It must go to others for issuance of regulations, prices, priorities, etc. But these other government agencies are more and more dominated by business men with the final veto of course with the War and Navy Departments, and these other business men are going to look to and accept the recommendations of this oil set-up. There is the possibility that War Boss Nelson may even give the oil machinery final power to decide questions on which, to-date, it has only been making recommendations.

BUT even if only the power to recommend is all that this oil machinery is given during the war, that is a great power, especially if the recommendations are written plainly in the public record for all in the industry and the public to see.

Petroleum Co-ordinator Ickes has said that he wants the oil industry to do its own job of running oil's contribution to the war. And of course that is the earnest determination of his deputy, Ex-Oil man Davies.

So, barring interference from other government agencies, what happens to the oil industry will be the responsibility of the industry itself so long as this set-

up prevails—and there is no indication of any change.

To Maintain Efficient Small Refineries

THE aim of Deputy Co-ordinator Davies, and his chief, as well as of all his associates, is to have the oil industry come out of the war a free and Independent and healthy industry. He wants to see as much competition still in the industry as now; and he wants that competition to be as strong as now. While the hazards of war may reduce some branches of the industry in size due to diversion of products to the war effort, Deputy Co-ordinator Davies does not want the hardships of war to reduce the number of units in the industry at least not any more than can be helped.

To the end of preserving the oil industry as it is, the co-ordinator's office is carefully guarding the various units in the industry. At present, effort is made to see that Independent refiners are not pushed out of existence by lack of any facilities, such as supplies of crude oil or means of efficient transportation.

In the shortage of tankers which is now developing, due to sinkings by submarines and heavy diversions to Navy use in the Pacific, the co-ordinator's office is asking all tanker owners to see that the remaining ships look after the interests of all refiners as best as that can be done.

In recent discussions at the co-ordinator's office on restrictions on the manufacture of marketing equipment, the co-ordinator's associates inquired particularly as to the operation of these restrictions on independent concerns, and said that so far as possible they wanted to make sure that the Independent marketers of petroleum were not unduly hampered and to their competitive detriment.

Over in the refining division of the co-ordinator's office all plans for the manufacture of the petroleum components for synthetic rubber and for the simply tremendous amount of 100-octane aviation gasoline are being made so that not only the oil industry will be making these products in its own plants, but also so that those plants will be on such an efficient scale that they will be able to survive competition with real rubber after the war and at the same time be able to continue to furnish their full output of 100-octane gasoline to the planes and new car models after the war.

In fact, the refining division is going still further. Since the economic manufacture of these products must be on a large scale, the refining division is working out plans with Independent refiners whereby, if the individual refiner is not large enough to handle a new project, he can teamup with other Independents and between them own and supervise efficient refining units that will survive the competitive battle after the war. The plan allows for reasonable government financing to the small refiner, and also the borrowing of refinery technical men to teach the small refiners how to run the new plants.

Oil Men Accept the Challenge

IT IS to accomplish this aim of a free oil industry that the petroleum co-ordinator's machinery has been set up as it has, that oil men from all over have been invited to take part in its management, and other oil men have been asked to participate in its operation. As the demands of war mount, the number of oil men in both advisory and operating capacities will be increased; in fact the number is increasing right now.

There is every indication that this World War will be fought by as much of a united oil-industry operated war machine as was the last World War, in which the men of the oil industry brought such great credit to themselves and to their country.

The opportunity is here today for the oil industry to do an outstanding job of industry management of its war effort. It is the greatest opportunity yet offered any American industry.

And oil men, from all we hear, are accepting the challenge.

East's Dealers Warned by Marshall To Conserve Equipment and Rubber

By NPN Staff Writer

PHILADELPHIA, Jan. 28 — Gasoline dealers were warned here last night by Office of Petroleum Co-ordinator's Chief Counsel J. Howard Marshall to use extreme caution in conserving marketing equipment and rubber tires and to impress necessity for such conservation on their customers.

Dealers were urged to guard their talk with customers and not to repeat some rumored isolated case where somebody was supposed to have plenty of some critical material, as this only tends to create a false impression of security.

Synthetic rubber requires much of the same base material as 100-octane gasoline, Mr. Marshall pointed out, indicating dealers and their customers should not count heavily on greatly and suddenly increased production of synthetic rubber. One of the principal problems now is to determine how these base materials should be divided between these two military necessities, Mr. Marshall said.

200 Dealers Hear Talk

Mr. Marshall spoke before a meeting of about 200 gasoline retailers and marketers of the Eastern States Gasoline Dealers Conference. He was introduced by Sol A. Herzog, New York, counsel for the conference.

Other points brought out in Mr. Marshall's talk were:

On 7 to 7 station closing, he was noncommittal.

He discounted possibility that there would be only one grade of gasoline sold for general civilian use.

Discussing Conservation Order M-68-C, which prohibits marketing construction and expansion save for a few exceptions, he said such exceptions for the most part would be limited to construction in new residential and defense-type areas.

Fair Trade Discussed

Following Mr. Marshall, Cash B. Hawley, Detroit, past president of Retail Gasoline Dealers Assn. of Michigan, spoke briefly on "A Market Without Price Wars", in which he explained Michigan's fair trade law and discussed the cost surveys being conducted by the Michigan dealers' association. Since passage of the fair trade law, price-cutting has disappeared in Michigan, Mr. Hawley said. The Detroiter was introduced to the meeting by John Dressler, Hackensack, N. J., chairman of the eastern dealers' conference.

Resolutions Adopted

Five resolutions were adopted by the Eastern States Gasoline Dealers Conference, asking for:

1. Immediate imposition of nation-wide mandatory 7 to 7 curfew on sale of petroleum products for use in motor vehicles, to conserve electricity and materials for emergency needs and to release labor for defense purposes;
2. Five cents a gallon dealer margin in retail gasoline price ceiling to offset diminishing sales and consequent increase in cost of business;
3. Cessation of deliveries to small so-called commercial consumers and private consumers by major companies, jobbers, and distributors because such sales are wasteful, uneconomic, and constitute unfair discrimination against the retail gasoline dealer;
4. Moratorium on all mortgages for period of war and 12 months thereafter and ceiling on service station rents as of Nov. 7, 1941, for same period, because of supply restrictions, increased costs, and curtailed sales;
5. Government authorization of competent committee to study cost of retail gasoline prices.

Good-Will Created by Tax Stamp Sale

Special to NPN

BALTIMORE, Feb. 4.—Sales of federal motor vehicle "use" tax stamps by American Oil Co. stations in the Baltimore and Washington, D. C., areas as a good-will builder will probably top the $75,000 mark. The plan has met with "instantaneous" success, company spokesmen say. During the first two days of sales, more than $30,000 was collected by American's stations in the two areas.

Stamps which were sold for use beginning Feb. 1 expire June 30, 1942, when they will go on sale again—the next time for a full year at $5. This time, stamps cost $2.09 each.

WITH THE ASSOCIATIONS

State Association Officers Organize Nation-Wide Group

By Telephone to NPN

JEFFERSON CITY, Mo., Feb. 2—Secretaries of state oil jobber associations in all sections of the U. S. are being invited to a meeting of the State Executive Council of America which will be held in connection with Wisconsin Petroleum Assn.'s annual meeting, March 18-20, at Milwaukee.

Invitations are being mailed by Robert W. Hadlick, executive secretary of the Missouri Independent Oil Jobbers Assn., who is also president of the state executives council, a group made up of jobber association secretaries. Other officers are: Treasurer, G. A. Primm, executive secretary of Illinois Petroleum Marketers Assn.; and Secretary, A. C. Gienapp, executive secretary of Iowa Independent Oil Jobbers Assn.

First meeting of the executive group was at St. Louis, Jan. 7. Besides Messrs. Hadlick, Primm and Gienapp, also present were J. E. Adrian, secretary of the South Dakota Independent Oil Men's Assn., and Roy L. Brecke, secretary of the Wisconsin Petroleum Assn.

Represent 3000 Jobbers

Pointing out that they represented 3000 independent jobber marketers in these five midwestern states, the executives council adopted a resolution urging that, since integrated refiners will supply war needs of the Allies, the independent marketer should be allowed to handle civilian needs of this country.

Resolution was directed to Petroleum Co-ordinator Ickes, Deputy Co-ordinator Davies, OPC Marketing Director Frey and other officials at Washington, as well as to District 2 Marketing Committee. Latter group is understood to have tabled the resolution at its last meeting but may take it up again at its next meeting. So far, response from Washington is said to be noncommittal.

Resolution proposed that independent marketers be "designated as the official suppliers of petroleum products for the civilian needs."

PRESIDENT: ROBERT W. HADLICK

TREASURER: G. A. PRIMM

SECRETARY: A. C. GIENAPP

Shift O.P.M.A. Convention From Spring to Fall

COLUMBUS, O., Feb. 2.—Influenced considerably in their course by wartime conditions, directors of Ohio Petroleum Marketers Assn. have ordered that the organization's annual convention and marketing exposition be shifted from early spring until autumn, Robert A. Warfel, executive secretary, announces.

Dates for the 1942 convention and exposition have been set for Oct. 20 and 21, at Hotel Deshler-Wallick in Columbus.

Another change in connection with this outstanding event in the affairs of Ohio oil men is that the convention will be a two-day meeting instead of three, with the annual dinner on evening of second day.

Throughout its 20 years' history, the association always has conducted its annual convention early each year. Mr. Warfel said convention hereafter probably will be held in the autumn. Weather conditions and overlapping of convention dates also were factors in the change, he said.

Boat Cruise Date Set

NPN News Bureau

NEW YORK, Feb. 2—Annual boat cruise of the Westchester (N. Y.) Oil Trades Assn. this year will leave from the Astor Dock, 44th St. and 7th Ave., New York City, on Feb. 21. Cocktails will be served on board at 6:30. The "womenfolks" are again invited and the crew fee is $6 per person.

South Carolina Jobbers Renew Protest Against 'Squeeze' in 'Gas' Price Advance

NPN News Bureau

CLEVELAND, Feb. 2—Advance of 0.3c in eastern gasoline prices "has not helped the jobber", so South Carolina Oil Jobbers Assn. has decided to renew its request that Price Administrator reduce seaboard terminal prices or "decree an advance" in tank wagon and service station prices without a corresponding increase in tank car or refiner's prices.

This action was taken at a meeting at Columbia, S. C. on Jan. 30. Another resolution asked Petroleum Co-ordinator Ickes to require that all service station sales of gasoline be for cash only. Donald M. Nelson, War Production Board chief, was asked, in another resolution, to allocate government's war buying of petroleum products so that the independent jobber may get a part of this business.

Text of Resolution

Original resolution of the South Carolina association, protesting the price "squeeze", was adopted Nov. 24, 1941. Full text follows:

WHEREAS, the independent oil jobbers of South Carolina, because of controls exercised by the major oil companies, have been forced to operate on a margin (that is the difference between their purchase price in tank car lots and their selling price in tank wagon deliveries) which margin has not changed in the past six or seven years; and

WHEREAS, in that period of time expenses of operation of a wholesale marketing oil plant have increased tremendousy due to increased taxes, increased labor costs because of the Wages and Hours Act and the Defense Program, and increased costs of material and supplies; and

WHEREAS, the major oil companies have increased the tank car price of 72-74 octane gasoline at Charleston, South Carolina (and at other points along the Eastern Seaboard) from a price of 6c per gallon in March, 1941, to a current price of 7½c per gallon, an increase of 1½c per gallon; and at the same time they have increased the retail price of gasoline to the consumer only 1c per gallon; and

WHEREAS because of exorbitant increases in the price of crude oil and refined products the major oil companies are showing earnings far in excess of any in the last decade, while the independent oil jobber is suffering losses;

NOW THEREFORE BE IT RESOLVED by the South Carolina Oil Jobbers Association in meeting at the Jefferson Hotel, Columbia, South Carolina, this 24th day of November, 1941, that this resolution be sent to Mr. Leon Henderson, Office of Price Administration, Washington, D. C., as a petition for some prompt action by his department to correct the inequity upon the independent oil jobber and wholesaler by either ordering the major oil companies to reduce their high refinery and terminal prices or in the alternative decree an advance of ½c per gallon in the tank wagon and service station prices of gasoline in South Carolina without any corresponding increase in the tank car or refinery prices.

Octane Cut Shown by Bureau of Mines Report

CLEVELAND—Recent changes in octane numbers—due to tetraethyl lead shortage and taking of blending stocks for aviation fuels—is indicated by Co-operative Fuel Research report on summer gasolines of 1941 (B. of M. Rept. of Invstgns., 3611). Average qualities of gasolines surveyed tabulated on this page can be compared with present octane values disclosed in a recent check (NPN, Jan. 21, P. 17—Ed.). This showed: Premium (Ethyl) gasolines generally at 78 (A.S.T.M.); Regular, around 72 in Middle West and Mid-Continent; 71-72 at Gulf Coast; 70 in Rocky Mountain area; and 71-73 on West Coast. "Leaded" third grade in Middle West was generally 63-66. In East, most refiners reported their octane numbers generally unchanged.

Table 1. Regular Grade Gasoline

District	Gravity °A.P.I.	Sulfur, per cent	Reid vapor pressure, lb.	Octane number A.S.T.M.	Distillation range, °F. I.B.P.	Per cent recovered 10	50	90	End point
Boston	59.9	0.062	8.1	76.3	100	143	239	346	400
New York	60.6	.06	8.0	75.7	99	142	237	345	392
Washington, D. C.	60.0	.06	8.0	75.8	100	140	239	349	400
Pittsburgh	60.0	.059	8.1	75.8	97	141	240	350	402
Cleveland	61.1	.059	8.0	75.3	98	140	234	352	404
Detroit	61.4	.052	8.0	75.4	96	140	232	346	399
Atlanta	59.7	.064	7.7	75.1	102	144	236	342	395
Chicago	61.4	.059	8.4	74.4	99	137	234	349	402
New Orleans	59.9	.062	8.2	76.2	104	145	242	346	400
Memphis	60.1	.057	8.1	76.2	102	145	238	341	396
St. Louis	60.7	.081	8.1	74.1	100	142	238	349	400
Minneapolis	62.3	.036	8.0	74.1	98	138	231	344	395
Omaha	61.8	.05	8.2	73.9	100	138	235	353	400
Tulsa	61.4	.05	8.0	73.4	101	140	240	353	401
Texas	60.5	.056	7.8	75.1	105	145	242	346	393
South Rocky Mt.	58.2	.115	6.8	71.7	106	151	254	361	406
Middle Rocky Mt.	60.2	.045	7.3	72.9	102	145	247	336	405
North Rocky Mt.	59.1	.09	7.6	73.7	98	142	252	355	399
Seattle	58.6	.201	8.1	73.8	99	141	248	345	392
Los Angeles	58.5	.188	8.0	75.7	96	143	254	350	394
San Francisco	58.7	.228	8.1	74.8	100	143	250	350	392
Average	60.4	.076	7.9	74.7	100	142	240	348	399

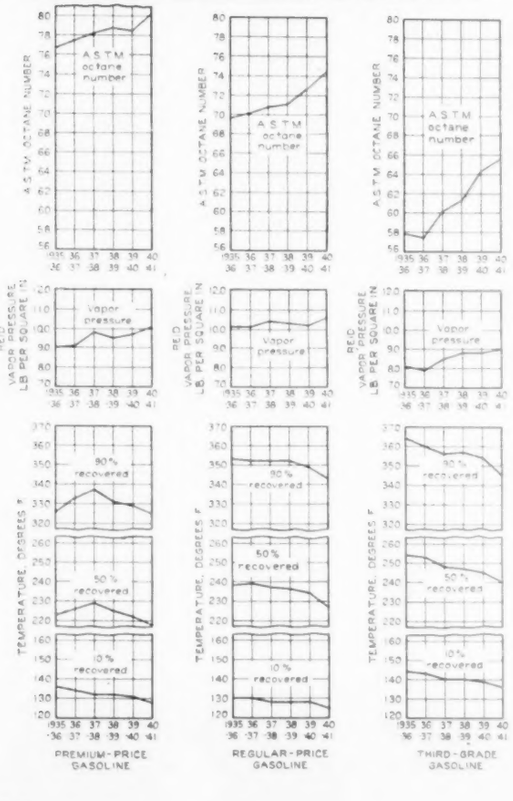
Table 2. Premium Gasoline

District	Gravity °A.P.I.	Sulfur, per cent	Reid vapor pressure, lb.	Octane number A.S.T.M.	Distillation range, °F. I.B.P.	Per cent recovered 10	50	90	End point
Boston	58.5	0.054	7.7	80.6	104	145	221	328	387
New York	59.5	.055	7.8	81.0	102	144	222	324	382
Washington, D. C.	59.2	.055	7.5	80.9	103	146	224	324	381
Pittsburgh	59.3	.045	7.3	80.1	104	146	230	332	390
Cleveland	59.5	.062	7.9	80.5	101	141	222	342	402
Detroit	59.4	.068	7.7	79.3	103	142	228	358	398
Atlanta	60.5	.058	7.4	80.0	106	148	228	330	384
Chicago	62.8	.056	8.3	79.8	101	135	215	327	380
New Orleans	60.8	.053	7.5	80.4	106	150	233	322	380
Memphis	59.6	.054	....	81.0	107	149	218	307	376
St. Louis	61.9	.053	8.3	79.9	102	140	224	333	391
Minneapolis	62.4	....	8.2	79.5	101	135	221	332	391
Omaha	62.7	.053	7.8	79.4	103	136	218	330	385
Tulsa	62.7	.044	7.8	79.4	102	140	223	324	391
Texas	61.0	.054	7.2	79.6	107	147	240	331	385
South Rocky Mt.	60.8	.095	7.0	79.7	106	149	232	320	375
Middle Rocky Mt.	61.8	....	7.2	79.6	106	143	230	333	387
North Rocky Mt.	61.2	.039	7.2	80.9	108	147	227	317	378
Seattle	61.2	.043	7.6	81.5	105	147	223	306	364
Los Angeles	60.9	.056	7.5	82.5	100	148	231	315	368
San Francisco	60.9	.036	7.4	82.0	105	149	226	312	368
Average	60.9	.055	7.6	80.2	104	143	225	326	385

Table 3. Third-Grade Gasoline

District	Gravity °A.P.I.	Sulfur, per cent	Reid vapor pressure, lb.	Octane number A.S.T.M.	Distillation range, °F. I.B.P.	Per cent recovered 10	50	90	End point
Boston	....	....	....	....	....	....	....	....	....
New York	59.7	0.067	7.6	71.8	99	146	234	351	400
Washington, D. C.	60.6	.043	7.6	72.7	99	144	240	346	398
Pittsburgh	60.8	.054	7.6	75.3	99	142	233	347	396
Cleveland	61.2	.097	7.0	65.9	103	151	229	331	386
Detroit	62.3	.047	7.4	69.0	99	145	244	349	398
Atlanta	....	....	....	....	....	....	....	....	....
Chicago	61.2	.036	7.5	65.2	103	148	246	332	402
New Orleans	....	....	....	....	....	....	....	....	....
Memphis	....	....	....	....	....	....	....	....	....
St. Louis	61.4	....	8.1	67.7	101	144	244	352	403
Minneapolis	62.2	....	8.0	66.3	98	144	241	354	403
Omaha	62.3	.055	7.4	63.3	101	145	249	355	407
Tulsa	62.6	.023	7.7	61.6	100	146	241	355	412
Texas	60.2	.051	7.0	56.6	110	160	254	351	402
South Rocky Mt.	59.3	.073	7.5	57.9	105	149	262	363	409
Middle Rocky Mt.	59.4	.032	6.3	54.8	111	158	252	357	406
North Rocky Mt.	58.7	.061	7.1	59.3	98	144	262	369	411
Seattle	57.1	.094	7.2	61.9	103	151	261	363	414
Los Angeles	57.4	.113	7.6	64.8	98	150	268	369	413
San Francisco	57.5	.084	7.8	62.1	100	150	263	370	409
Average	60.2	.064	7.4	63.9	102	149	249	353	404

Winter Gasolines, 1936-1941



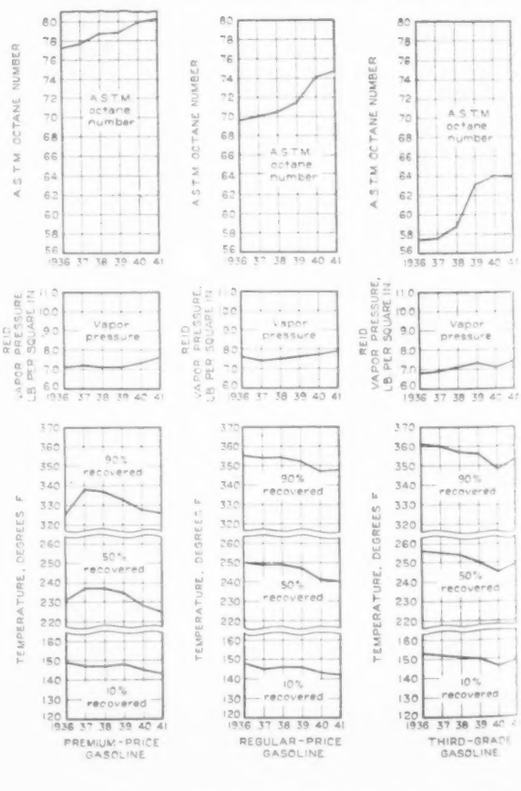
Five-Year Trends Charted

These two charts show changed characteristics for gasolines during 5-year period, 1936 through 1941, as follows:

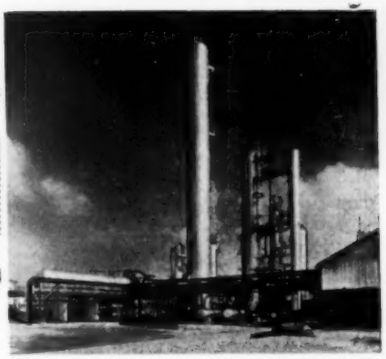
SUMMER GASOLINES—Octane number of "regular" rose from 69.9 to 74.7; premium, up from 77.2 to 80.2; and third grade, 57.3 to 63.9. Vapor pressure of "regular" rose from 7.3 to 7.9 lbs.; premium, 7.1 to 7.6; and third grade, 6.8 to 7.4.

WINTER GASOLINES—Octane number of "regular" rose from 69.6 to 74.4; premium, up from 76.7 to 80.2; and third grade, 57.9 to 65.6. Vapor pressure of "regular" has not varied more than 0.3 lbs. either way from average of 10.3 lbs.; premium, up from 9.0 lbs. to 10.1 lbs.; and third grade, 7.9 to 9.0 lbs.

Summer Gasolines, 1936-1941



REFINING NEWS



Refining Problems Slated For Study by WPB Chiefs

NPN News Bureau

WASHINGTON, Feb. 3—Principal refining problems and their relation to the war effort as a whole are scheduled for consideration by the War Production Board at its Feb. 24 meeting, it was learned reliably today.

Although officials closely connected with the board declined to outline the agenda because the date is too far away, informed quarters said tetraethyl lead allocation, 100-octane gasoline, synthetic rubber and toluene would be discussed.

It was indicated that other petroleum problems would be brought up, including the demands likely to be placed upon the entire industry this year and the materials requirements of a program expected to reach the unprecedented production rate of 5,000,000 bbls. of crude daily by spring.

Supply Priorities and Allocations Board (SPAB), predecessor of WPB, took up the 100-octane program, giving the "green light" on priorities for the 150,000-bbl. daily program on Dec. 16.

May Boost 100-Octane

The report that WPB was again taking up this program gave rise to speculation that Army and Navy estimates, revised on the basis of President Roosevelt's projected 185,000 planes this year and next, had reached such a point that Office of Petroleum Co-ordinator was in a position to begin charting a much greater 100-octane production program.

Critical materials to be consumed by the 100-octane plants was expected to be a matter of major import at the Feb. 24 meeting.

Greatly enlarged synthetic rubber production, predicated on the ability of the petroleum industry to supply sufficient raw materials—butadiene—for synthetic rubber will be gone over, it was said.

SPAB previously had "okayed" Federal Loan Administrator Jesse Jones' plan to triple the output of synthetic rubber, bringing it to 120,000 tons annually. But his new program of 400,000 tons a year by July 1, 1943, calling for participation by the petroleum industry, has not been studied as yet by the top war production agency.

Skeptical of Estimate

It was said in usually well-informed quarters, however, that some skepticism had been expressed by high-ranking officials that such an enormous production rate could be achieved by the middle of next year, especially since synthetic rubber production is literally starting from "scratch."

Derivation of toluene—vital component of TNT—from petroleum has been under study by war chieftains for many months, and a number of plants already are producing this chemical. However, figures on toluene are said to be a military secret.

Tetraethyl lead allocation—the subject of 2 different government studies—also may be decided upon, it was indicated. Within the War Production Board, a group has been working on "lead" allocation for some time, a program that would distinctly differ from Ethyl Gasoline Corp.'s present system. It was said OPC has been studying allocation, and probably has a few suggestions of its own to make.

Greater Output Urged Of 100-Octane Bases

Special to NPN

HOUSTON, Feb. 2.—Operators of plants producing butane, iso-butane and iso-pentane in District 3 have been asked by the district's natural gas and natural gasoline committee, headed by N. C. McGowen, to increase their production of these products to the maximum quantity economically possible.

"Existing and proposed natural gasoline extraction plants, cycling, pressure maintenance and repressuring plants are prime sources of butane, iso-butane and iso-pentane and should be so constructed and operated as to facilitate the recovery of these elements in as large quantities as possible," Mr. McGowen said.

Gary to Discuss 100-Octane At A.I.M.E. Meeting

NPN News Bureau

NEW YORK, Feb. 3 — "100-Octane Gasoline, Present and Future", an address to be presented by Wright Gary, director of refining in Office of Petroleum Co-ordinator, will be one of the highlights at the annual meeting of the American Institute of Mining and Metallurgical Engineers' petroleum division here Feb. 9-12. Mr. Gary is scheduled to speak Feb. 12. On the same program will be Everette Lee DeGolyer, OPC's director of conservation, who will present a paper entitled "Conservation".

Refinery Operations

(American Petroleum Institute figures in barrels of 42 gallons. Figures are U. S. totals and are on a Bureau of Mines basis. Breakdown by districts will be published in Feb. 11 NPN.)

	Week Ended Jan. 31, '42	Week Ended Jan. 24, '42	Week Ended Feb. 1, '41
Crude runs to stills (Da. avg.)	3,848,000	3,885,000	3,660,000
Gasoline production at refineries including natural blended	13,201,000	12,928,000	12,091,000
Finished & unfinished gasoline stocks	97,810,000	96,363,000	90,366,000
Gas oil & distillate stocks	40,674,000	41,863,000	37,938,000
Residual fuel oil stocks	91,189,000	92,079,000	98,097,000

Refiners Black Out Gulf Coast Plants To Meet Sub Menace

Special to NPN

HOUSTON, Jan. 31.—Announcement by the Navy that a submarine, presumably enemy, had been sighted Jan. 28 in the Gulf of Mexico near Corpus Christi brought into sharp focus again the problem of overland transportation of oil and refined products from southwest producing centers to the East.

While naval officials expressed the belief that the submarine possibly intended to prey upon tankers in this heavy oil shipping route, there was fear that the submarine might shell vital coastal establishments, including oil refineries, storage plants and pipelines. A complete blackout of the area was observed on the night of Jan. 28.

Oil men here believe the sighting of the submarine will serve as further argument for the building of the proposed $80,000,000 crude line from East Texas to the Eastern Seaboard. Petroleum Co-ordinator Ickes on Jan. 29 said the project, for which steel was denied by SPAB last fall, might be revived.

A shortage of tank cars in Districts 1 and 2 was reported here, but since most of the oil moving via land from District 3, is by pipeline into District 2, the transportation committee of this district has not taken up the tank car scarcity.

Harry C. Wiess, chairman of the District 3 transportation committee, declined to comment. It is known, however, that the committee is concerned with the precariousness of Southwest-to-Eastern Seaboard shipping because of the submarine threat.

Michigan Refiner Adds Unit

Special to NPN

KALAMAZOO, Mich., Feb. 2.—Lakeside Refining Co. is constructing a 600-bbl. capacity Perco catalytic desulfurization unit here, according to President L. W. Brummit. The unit will process Michigan straight-run gasoline.

'Tight' Tank Car Situation Brings 7-Day-a-Week Hauls

NPN News Bureau

CLEVELAND, Feb. 3.—Tank cars are rolling in and out of most major company refineries and terminals 7 days a week—generally 24 hours a day—and the move is beginning to spread throughout the entire oil industry.

Summation of reports from refiners and natural gasoline and cycling plant operators checked by NPN this week indicates an acute shortage of butane-propane cars; some pinch on natural gasoline cars; inability to get suitable cars for particular products without some delay. Loaded cars are moving well for the most part but empty cars are slow in returning.

Big West-East Movement

One large tank car leasing company has told lessees that 25% of its cars will be needed for crude hauls from the Southwest to the East Coast this year; that lessees will have to make utmost use of cars in their yards, cleaning the cars themselves when necessary, with the tank car leasing company willing to stand part of the cost of such cleaning.

In the opinion of this tank car leasing company, the situation is already "tight" and will get much worse, soon. Plans announced by Office of Petroleum Co-ordinator to convert tank cars so as to provide more cars suitable for hauling 100-octane gasoline and synthetic rubber base stocks are meeting with difficulties. Indications are that many 104-A cars will not be able to stand the higher pressures, especially in summer temperatures.

Some uses of propane-butane cars now border on "non-essential" service, according to some oil traffic men. One of such uses is cars hauling liquefied petroleum gas to a distributing plant where it is "bottled" in cylinders. If cost is not considered a factor in face of the urgency for increasing output of 100-octane and synthetic rubber, the cylinders might be filled at the source and shipped out in other types of freight cars, it was said.

Rails Supply East With 86% More Oil In 2-Weeks' Period

NPN News Bureau

WASHINGTON, Jan. 31.—Indication that the oil situation along the East Coast is becoming tighter was seen in increased tank car movement into this area for week ending Jan. 24. These indications were supplemented by a statement from Petroleum Co-ordinator Ickes at his press conference last week that this is so.

For week ending Jan. 24, Office of Petroleum Co-ordinator reported a total of 3410 cars moved into East Coast area compared with 2410 for week ending Jan. 17 and 1827 for week ending Jan. 10. OPC pointed out that tank car movement increased 86% in 2-week period of Jan. 10-24.

Move 109,467 Bbls. Daily

Daily deliveries of both crude and its products for week ending Jan. 24 were 109,467 bbls., or 32,075 bbls. more per day than for preceding week.

Companies reporting tank car movements in week ending Jan. 24 were: Atlantic Refining and Gulf—311 each; Pan-American—236; Pure—77; Shell—259; Sinclair—36; Socony-Vacuum—117; Kentucky Standard — 63; Jersey Standard—1651; Sun—78; Texaco — 166; and Tide Water—105.

Tire Thieves Beware!

NPN News Bureau

CLEVELAND, Feb. 2.—Bills providing stiff penalties for tire rustlers have been introduced in 9 states and the District of Columbia and a bill by Rep. Cochran, Mo., introduced in Congress as H.R. 6311, would make tire thefts a federal offense, National Highway Users Conference reports. States now considering measures to increase penalties for tire thefts are: Illinois, Kentucky, Maine, Mississippi, New Jersey, New York, Rhode Island, South Carolina and Virginia.

U. S. to Stabilize War-risk Premiums

NPN News Bureau

WASHINGTON, Feb. 2 — A plan to stabilize war-risk insurance rates on merchant vessels will be adopted Feb. 15, the Maritime Commission announced today after conferences with American Marine Insurance Syndicate and other commercial marine underwriters.

As a result, war-risk rates will be published on a month-to-month basis, departing from the current practice of quoting daily rates. A schedule of rates for the latter half of February will be published Feb. 10. Thereafter, the rates will be published on the 25th day of each month.

The Commission said the stabilization plan was adopted because of the importance these rates play in operating costs of vessels as well as to meet the commission's desires to stabilize these costs as far as possible.

The rates will be approved by the commission before they are published. If approved, shipowners may obtain insurance directly from the commission under legislation passed in June, 1940, authorizing the commission to write war-risk insurance and setting up a $40,000,000 fund for this purpose.

The commission announced the American Marine Insurance Syndicate had adopted rules to conform to the commission's new plan.

Truck Sales Ban Extended by WPB

NPN News Bureau

WASHINGTON, Feb. 2.—The temporary stoppage of sales of new light, medium and heavy trucks and truck trailers was extended on Jan. 31 from Feb. 2 to Feb. 11 and a plan was announced for releasing between Feb. 12 and Feb. 26 new cars that were purchased but not delivered on Jan. 1.

J. S. Knowlson, director of War Production Board's division of industry operations, said the extension of the sales ban was necessary to allow the Office of Price Administration, which will ration cars, to complete details of the rationing system.

Acting under rationing authority extended to him by War Production Board, Price Administrator Leon Henderson said rationing boards would be allowed to dispose of cases where cars had been sold but not delivered on Jan. 1, before starting to ration remaining passenger cars.

Conditions Stated

To obtain such a car, the purchaser must submit a certificate of title or registration dated on or before Jan. 1, 1942; or a sworn statement by the local agency having jurisdiction over registrations to the effect that an application had been submitted before Jan. 1; or a written contract, or bill of sale, or other writing referring to the automobile, executed before Jan. 1; or one of the following:

A cancelled check for the full purchase price or for $25 or more of the purchase price, dated on or before Jan. 1; the original bound or serially-numbered receipt book used by the dealer showing entry of a credit for all or part of the purchase price; a certificate of title or registration issued on or before Jan. 1 showing transfer of title to a used car that was "traded in" for a new car; or a sworn statement by a state or local automobile registration agency that application for such a transfer of title had been filed on or before Jan. 1.

Would Cut 'Naturals' Rate

Special to NPN

ST. LOUIS, Feb. 2.—Southwestern Freight Bureau has docketed a proposal to establish rate of 20c per cwt. (0.0132c per gal.) on casinghead gasoline in carloads from Amarillo, Fritch, Shamrock, Sherrin and Wilhelm, Tex. to Barnsdall, Okla. Present rate is 26c per cwt. (0.01716c per gal.).

You'll be Seeing More of This

New loading rack at Pan American's Texas City, Tex., refinery, rushed to completion last summer when the East Coast faced its first oil transportation shortage

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

Wartime Products from Petroleum

By GEORGE B. MURPHY, NPN Technical Editor

There has been much in the news recently concerning the petroleum industry's contribution to the new wartime product requirements. Most of the raw material requirements revolve around hydrocarbons of a low and relatively narrow boiling range, such as iso-butane, butylene, butadiene and iso-pentane. Regardless of calculations that indicate only a very small percentage of our total crude is represented by this demand, these selected hydrocarbons are not available in such form or in such quantity that they may be supplied readily. The large majority of the smaller refiners and natural gasoline manufacturers are not in a position to erect units of practical size for their manufacture. They are also not in a position to deliver these high vapor pressure liquids by pipeline or tank cars, because special transportation equipment is required.

If the comparatively small refiner enters this field what are the products required today, what products may be called upon for use in the near future and what will be the status of these products after the war? What economic rules should the management apply? Will the law of supply and demand be favorable after the war? Will he become a marginal producer and finally forced out of the market? Many such thoughts as these are undoubtedly passing through the minds of the petroleum industry's refiners.

Reasoning indicates that if companies utilize all their butane and butylene for wartime products, the refinery crude input vs. products output may be thrown out of balance. That is, the stocks of straight run gasoline, distillate fuel and propane may increase. Our knowledge of the chemical reactions involved with low molecular weight hydrocarbons has become so great that research departments are apparently neglecting heavier raw materials.

In order to stimulate thought upon the subject, let us consider for example other possible sources of olefinic gases, especially butadiene. The manufacture of the latter product, butadiene, should be worth considerable mental effort on the part of the refiner since it commands a price many times that of ordinary petroleum products. At the present time it sells for approximately 20c per pound or one dollar per gallon. At such a price comparatively small capacity plants could be justified. By pyrolytic methods of high temperature, low pressure and short contact time complete gasification of liquid petroleum products might be achieved. We have been advised that gases containing as much as 10% butadiene have resulted from the operation of such a process upon an experimental scale with selected charging stocks.

The writer recalls a gasification experiment which upon a weight basis of one barrel 36° API M.C. crude showed 4000 cu. ft. of gas, 29 lbs. of coke and 16 lbs of loss. Such an operation, if conducted under the proper conditions, might be directionalized to provide a gas high in acetylene and butadiene content. Such an operation, in addition to providing the raw materials for synthetic rubber and 100-octane gasoline, might supply the petroleum raw materials for alcohol, glycols, aldehydes, ketones, organic acids, plastics, etc., for the chemical industry.

Today the proncipal bottleneck to the increased production of synthetic rubber is butadiene. Since over 10% of all research and development workers of the U. S. are employed in the petroleum industry, we may look to them for processes to meet this vital need.

In connection with the present great demand for the butane-butylene fraction of gases, how may the neglected propane-propylene fraction be utilized? Cannot this latter fraction be more efficiently utilized than as fuel? It is estimated that the consumption of bottled gas during 1941 was 432,000,000 gals. This figure constituting approximately 1.5% of the normal gasoline consumption in the U. S. represents a major use for the propane and butane. While the percent of the propane in this mixture has been increasing, there is no reason why the less valuable propane should not constitute approximately 100% of bottled gas. Of the total liquefied gases sold 40% was for domestic use and 60% for industrial purposes. Propane might be substituted for butane or light gasoline without disrupting the fuel system in a large industrial plant. Its heating value is approximately 91,500 b.t.u. per gal.

Refiners deficient in butanes and pentanes necessary for the vapor pressure of regular gasoline might substitute propane. A careful supervision of the blending would be required. In this connection another use for propane might be as an additive to heavy viscous crude oil for pipeline delivery. It is estimated that the average cost of long pipeline transportation is 0.06c per bbl. per mile, but the viscosity of the crude is a major factor in this cost. For example decreasing the Saybolt viscosity at 60 degrees F. from 300 to 150 results in a 10% increase in the capacity of the line and a greatly decreased operating cost per bbl. The increased fluidity obtained would justify crude stabilization at the delivery end of the line.

In general the research and development departments of the petroleum refining industry have put on their thinking caps and realize that the war has brought on a period when great technical accomplishments may be achieved. The last war brought a new dye-stuffs industry to the coal tar business and this war may bring a chemical industry to the petroleum business. Let's not be satisfied with the limited quantity of olefines and iso paraffins that have been presented to us, but let us make acetylene, butadiene and the many other starting materials for the manufacture of any organic compounds.

Many Applications for Welding In Refinery Maintenance*

By G. W. Nigh*

IN the petroleum refining industry, the great advances made in recent years were possible because of one process of fabrication—electric welding. New refinery equipment has the vessels, pipe lines, manifolds and most of the miscellaneous parts welded. As the electric arc has become such a universal tool for the manufacture of the refinery units, it is logical that it should be the most useful tool for repairing and maintaining all such equipment.

Every job, large or small, is to be studied, from the standpoint of cost reduction, as to possible application of welding: (a) to save buying repair parts, (b) to reduce out-of-service time, (c) to make the repair last longer than the original part.

A job, if a new one for this type repair, to be welded must indicate an estimated savings in: (1) actual cost over a new part or over other methods, or a savings in (2) time which in turn can be converted into dollars, or an (3) indicated savings in the future due to longer service to be obtained. Under (1) the actual cost of the completed job from the cost accountant is checked against the estimated. If the anticipated savings did not materialize, then future jobs of this type must have a better procedure or be crossed off the list. Under (2) the operating department furnish the figures for penalty for equipment being out of service. In most cases this is so large that time is the dominating factor, hence the speediest method is used, generally welding. Under (3) the savings is obtained only by wearing out the repaired job. This may take years, but usually several months is indicative of effectiveness and value of the welded repair.

A considerable amount of new construction work is done in addition to the maintenance work.

The use of welding falls into two classes, viz:

1. Welding as used on maintenance of equipment now installed.
2. Welding as used on fabrication of new equipment.

All work under (1) is done by the refinery crew as maintenance work. Under (2) the refinery crew makes only such new equipment as there is time for after taking care of maintenance work.

The welding on maintenance work can be divided into two functions, viz:

a) Joining together parts to make the whole. This replaces a previous method such as riveting, bolting, forge welding.

b) Building up worn parts. Here welding functions as a "putting on tool". Previous to welding there was nothing to fulfill this requirement.

Fig. 1. Repairs to liquid end cylinder block, duplex steam pump, size 12″ X 8½″ X 12″. Internal division walls were corroded away and cracked. Repairs were impossible by even acetylene welding, unless entire casting was preheated. This would require removal of all valves, seats, studs, liners. Photo taken of job partly completed shows it was not necessary to strip the casting. A good tiein could be obtained. The casting was rolled so all welding was downward. The welding was by the metallic arc process. The joints were not specially prepared as by studding. The casting in the picture was the fourth one to be welded, so there is no doubt about being able to make pressure tight welds on cast iron.

The cost of these jobs ran between $50 and $75 each. A new casting finished costs approximately $300. This

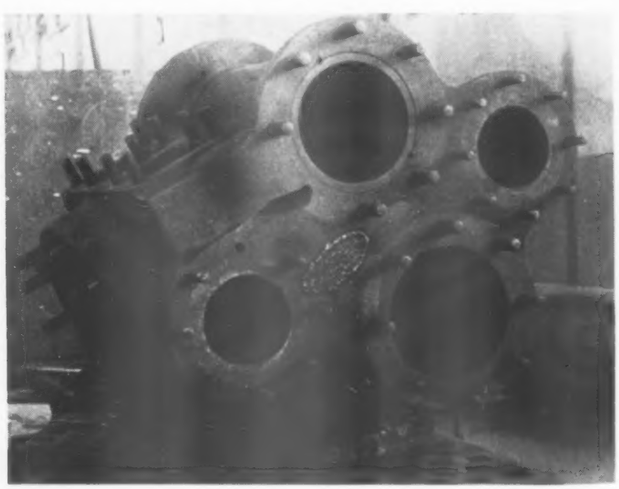


Fig. 1. A cracked cast iron liquid end cylinder block, duplex steam pump, was repaired by arc welding at a saving of about $250 each over replacement and several weeks' time in delivery

*Assistant mechanical superintendent, Tidewater refinery, Bayonne, N. J.

Data and illustrations are from a study submitted in a recent program of the James F. Lincoln Arc Welding Foundation, Cleveland. In its current $200,000 Industrial Progress Program, which closes June 1, 1942, the Foundation is offering 458 awards from $100 to $13,700, for reports of advances and improvements made by application of arc welding in design, manufacture, fabrication, construction and maintenance.

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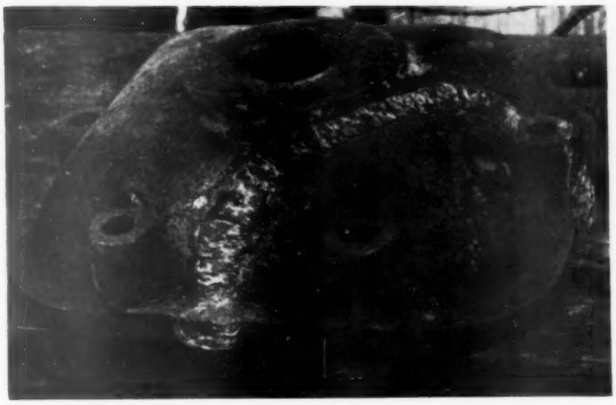


Fig. 2. The top casting for the liquid end of a steam pump was repaired by arc welding without preheating or studding at a cost saving of $20 over replacement

gives the direct savings. The indirect savings in out-of-service time is the difference between three days and several weeks, which is the delivery time on such castings all finished.

Fig. 2. Repair to the top casting for a 6" X 4" X 6" liquid end of steam pump. Break as shown was welded up by electric arc in half a day, the welder spending most of his time on other work. The secret is to not overheat the work. All finishing required is by hand on the gasket joint at the welds. Casting was not preheated nor studded. Cost including finishing was $5, compared with $25 for a new casting.

Fig. 3. A valuable piston rod, chromium plated, used

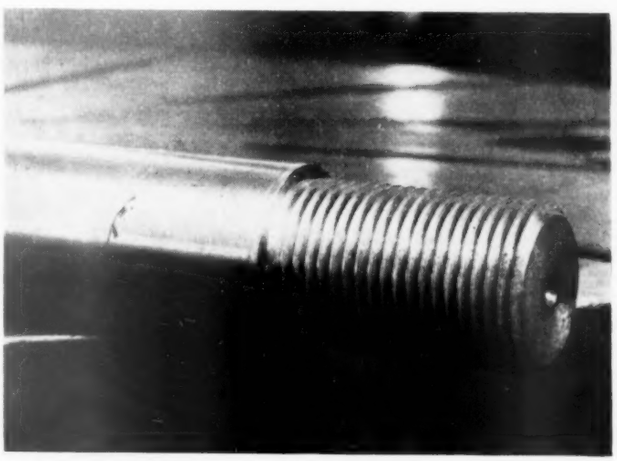


Fig. 3. A valuable chromium plated piston rod block at the end of a threaded section. A piece of stainless steel was welded on in place of the broken end, which made it as good as new

on hot oil, broke at end of threaded section which screws into the crosshead. It was from a hot oil transfer pump and received severe service. Size of rod was 2-15/16 in. diameter by 48 in. long. Material—alloy steel. A stub end of stainless steel was welded on in place of the broken end. Care was taken where joining to the plating. Stub end was turned and threaded after welding. The line showing joint between weld metal and plating is barely visible. This is satisfactory as the joint does not enter the packing in the stuffing box. This repair saved a valuable test rod as the plating, after two years, showed little signs of wear.

Fig. 4. Expansion joint on 16-in. vapor line. Riveted construction has a 3-in. channel ring with side sheets riveted to flanges. To keep them tight, joints had to be seal welded. The thickness of web of 3-in. channel is so small that cor-

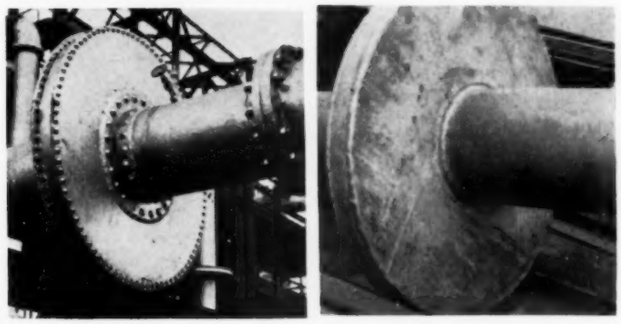


Fig. 4. (Left) Riveted expansion joint on 16-in. vapor line with seal welded joints. (Right) Arc welded joints with a ring of ½-in. plate make a permanently tight expansion joint. The labor cost of the welded joint was 50% that of the riveted joint

rosion causes failures in the channel ring at bottom. Joint is rotated 90 degrees at times to spread the corrosion area and thus prolong the life of the riveted expansion joint.

New welded joints were made as shown, with a ring of ½-in. plate. Side plates were double welded. This makes a permanently tight expansion joint with a long life. Except for the angle flanges, the material costs of the two designs were about the same, but the labor cost of the welded joint was 50% that of the riveted design.

Fig. 5. Pipe stanchions for carrying pipe lines over-

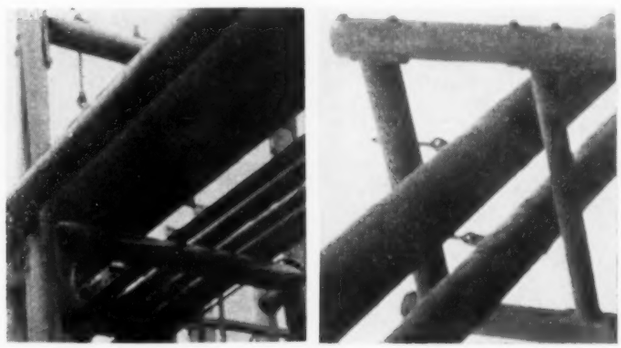


Fig. 5. (Left) Pipe stanchion for carrying pipe overhead fabricated of second hand pipe by forging. (Right) Stanchion also using second hand pipe fabricated with arc welding at a labor cost saving of 40% over the forged construction

head. These were made of second hand pipe. Formerly the cross bars were made by forging by blacksmith. Ends of the cross bar were flattened under the steam hammer, bent at right angles, then curved to fit the uprights. After which the bolt holes were laid out and drilled. It was an expensive stanchion when completed, even if made of scrap pipe.

The old design was changed to welding as illustrated. Curved plates were welded to ends of cross beams. These plates were cut out of a short length of same size pipe as the uprights and flattened slightly. The laying out and drilling of holes was done before welding. As in old style, all pipe used was scrap. Saving was on labor besides having a stronger stanchion. The sizes vary, so it was not possible to get a direct comparison in cost, but the labor on the welded stanchions averaged 60% of that of the forged construction.

Fig. 6. Steam hammer. Illustration shows the cylinder of a 1000-pound steam hammer. It was cracked where marked. Crack was beside an old acetylene weld made some years ago. The old weld metal was good but the casting

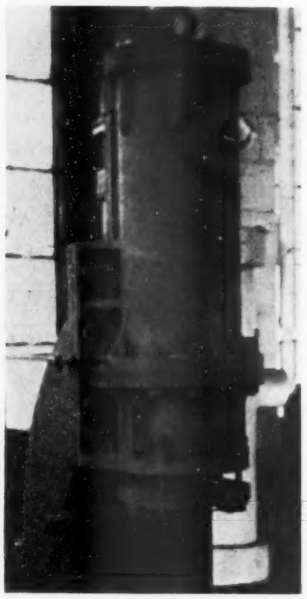


Fig. 6. The electric arc welding process was used to repair a cracked steam hammer. This repair took a few days at a cost of $30 in comparison to 6 weeks delivery and a cost of over $500 for replacement

was poor and failure occurred near the weld. The cylinder had been rebored to the limit. Another cut would have run into the steam ports. So, preheating and gas welding was out of the question. And to do that, the hammer would have to be dismantled.

In this case, the crack was chipped out almost to the bore. Cylinder was kept warm by some steam. The joint was welded up by the electric arc a little at a time. No studding was used. As soon as a seal was made, hammer was used between time in spite of some water leaks. Weld was completed in a few days, caulked for tightness and is still holding after five months. Here is a case where a new cylinder would have cost over $300, require 6 weeks delivery, cost another $200 to remove cylinder, strip, assemble piston in new cylinder, install and connect up. Total cost of welding repair was $30.

Fig. 7. Derrick stiff leg. On a rush job much time was lost ducking the boom end on the derrick under the mast head guy line. To save this time and not hold up the job, the illustrated stiff leg was fabricated from four angles with ⅝-inch round rods for latticing. Fabrication was by welding. Of course, such legs can be purchased, but delivery on special lengths is very slow. This example is given to illustrate the versatility of the welding department in handling unusual jobs.

Fig. 8. Monorail crane supports. The pipe shop was relocated. A monorail crane is required over each pipe machine. These crane beams were quickly and cheaply fastened to the building trusses by welding angles in tension and others for struts. Not a bolt was used. Assembly is stiffer and more satisfactory than the old bolted and riveted crane system.

Fig. 8. Monorail crane beams were quickly and cheaply fastened to the building trusses by welding

Fig. 9. Re-roofing tanks. A series of 115-foot diameter tanks were re-roofed. The four shown are typical. The technique was improved so that each roof cost less than the preceding one. The nearest one shown cost $4600 for labor and material. This includes all costs, such as handling, rigging, fabrication with the torch, pulling the plates together for tacking and welding all seams. All labor was paid according to standards of the metropolitan area. Welder dollies, shown below, were used on these roofs to enable the welders to work without excessive fatigue. If

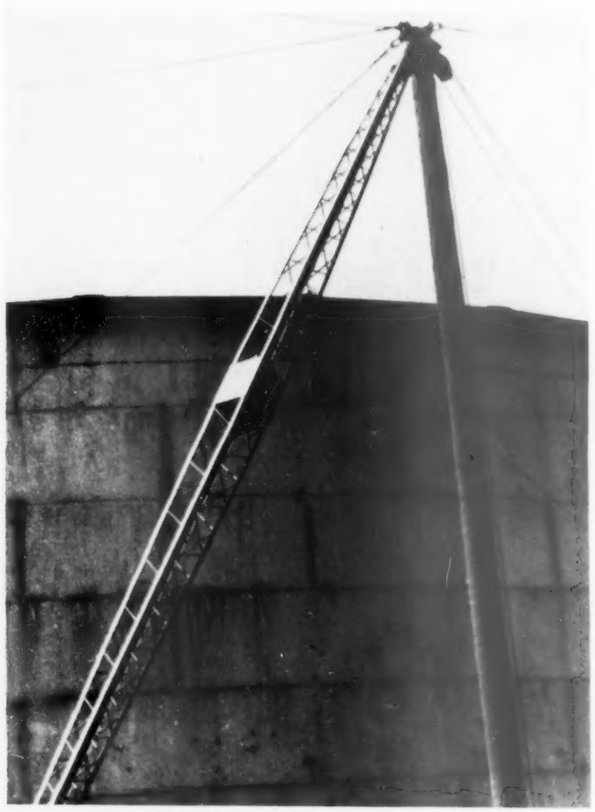


Fig. 7. Arc welding a versatile tool in handling of unusual jobs. Photo shows derrick stiff leg of arc welded construction

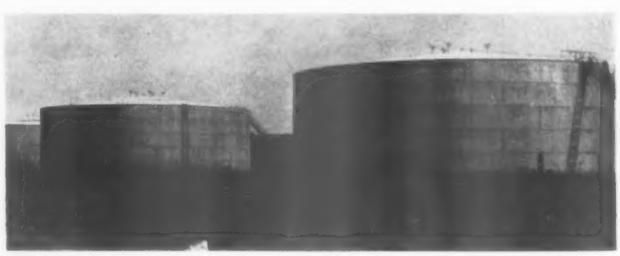


Fig. 9. 115-ft.-diameter tanks reroofed by electric arc welding. If these roofs were applied by rivets, the labor cost would have been approximately 90% greater than for welding

To save crude oil

For the past year, in reflection of a mounting demand, withdrawals of crude oil have exceeded for the first time in years, the discovery of new reserves During the first six months such withdrawals were approximately 100 million barrels in excess of new discoveries The country is using petroleum faster than it can be found—HENRY E. ROSE in THE WALL STREET JOURNAL, January 5, 1942

And the emergency demand is likely to top all previous records

So it's up to the refiners to produce the best possible yield in quantity and quality of vital wartime products from every barrel of crude they run, to reduce drain on reserves

And it's up to Universal refining specialists to help them in every possible way—and we are doing it

Let us help you to help Uncle Sam

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

THE REFINERS INSTITUTE OF PETROLEUM TECHNOLOGY

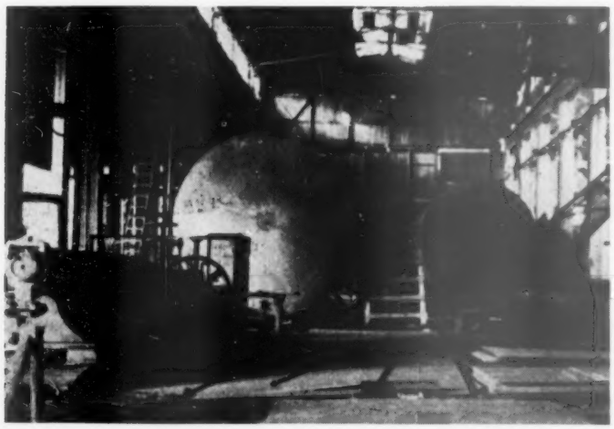


Fig. 10. New tanks are fabricated at a saving of 34% utilizing the electric arc process

these roofs were applied by use of rivets, the labor cost would have been approximately 90% greater than for welding. A gang of riveters will not do more footage than one welder. Shop fabrication would be high.

Fig. 10. New tank construction. To check the ability of the mechanical department to make tanks at a cost comparable to that of tanks purchased from outside shops, a lot of 7 tanks 15 ft. by 42 ft. high were made. The lowest quoted tank cost, delivered, was $1937 each. These tanks were fabricated in the plate shop as illustrated. One position was used fitting and assembling. The other was for welding. Tanks were rotated on rollers. It required some time for fitting up the shop and training the men to handle this work as a production job. The success obtained in doing this is indicated by the cost figures on the last tank —$1275 as labor, material, overhead. This is compared to $1937 as lowest quoted price. This is a savings of 34%.

Fig. 11. Steel stack. 7-ft. 6-in. diameter by 90 feet high. The upper third was so badly corroded it was not safe. The program called for demolition of this stack and boilers in two or three years. A new stack could not be justified. The old stack was stiffened by welding vertical angles as shown. Girthwis bands attached angles to shell of stack and maintained the spacing where sheets were too thin. This repair was made at one fourth the cost of a new stack which was the only other alternative if welding were not available. All this work was done while the boilers were in service and the stack shell was carrying flue gases at 500° F. temp.

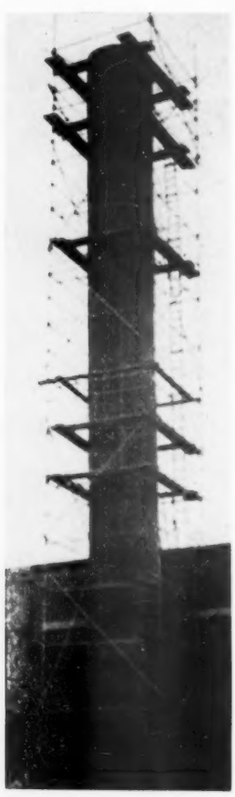
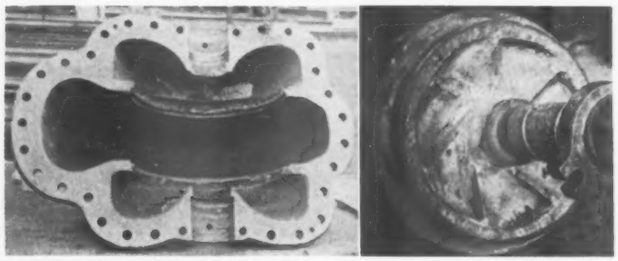
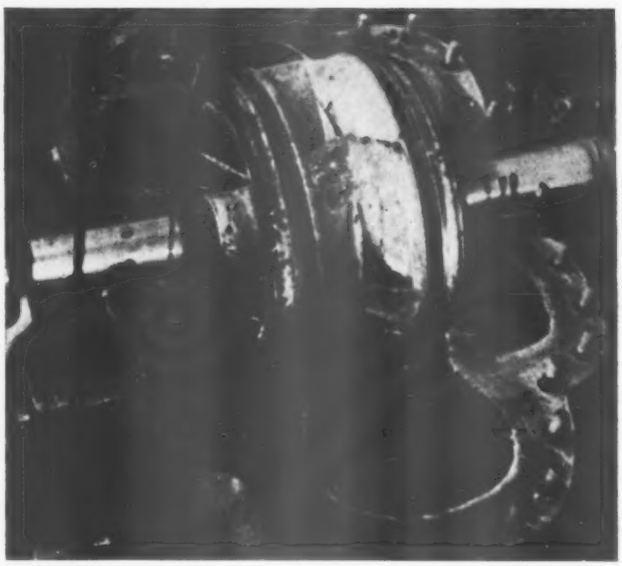


Fig. 11. Steel stack 90 ft. high repaired by electric and welding while the boilers were in service and the stack shell was carrying flue gasses at 500° F. tempt.

Figs. 12, 13 and 14. Maintenance of centrifugal pumps. For handling salt water in the refinery there are installed three pumps, each having a capacity of 21,000 gals. per minute against a running pressure of about 50 lbs. Due to corrosive effect of the water, the impellers and upper half castings lose metal rather rapidly. These pumps are





Figs. 12, 13 and 14. These photos show maintenance of centrifugal pumps by repairing the castings and impellers using monel metal and the electric arc process

expensive costing about $10,000 each. New impellers for spare can be purchased, but upper half casings cannot be obtained without the lower half. A new bronze impeller lasts from 1.5 to 2 years, when the intake vanes are all eaten away. As shown, the intake vanes are cut out and new pieces inserted. Work is done by welding. After trying various metals, monel was selected as giving the longest service. A repaired impeller now lasts about as long as a new bronze one. Repairs cost one fourth that of a new one.

The upper half casing is eaten out on intake sides and back of casing seal rings. This metal has been replaced with a silicon bronze applied with the carbon arc. But it is found that this metal does not withstand the action of the salt water. In less than one year, all this metal was gone. Repairs to these casings are now made by welding on a layer of monel, using the carbon or metallic arc method.

Where the bronze has become spongy the carbon arc is used to fuse down the surface ready to receive the monel metal. Aluminum bronze has been tried, but it is very difficult to handle and, so far, cannot be laid down as a smooth coating over porous metal. With present method of repairs, these three pumps with one spare impeller can be made to last almost indefinitely. Without welding, for these three pumps, a new impeller would be required about once a year and new casings at rate of one every 5 years. This is $13,600 per 5 years, or $2700 per year, saved by spending $400 per year for repairs by welding.

The above cases were selected to show the range of work possible with the electric arc. Hundreds of jobs are done every month that are of the putting-on-metal variety for worn surfaces to be machined.

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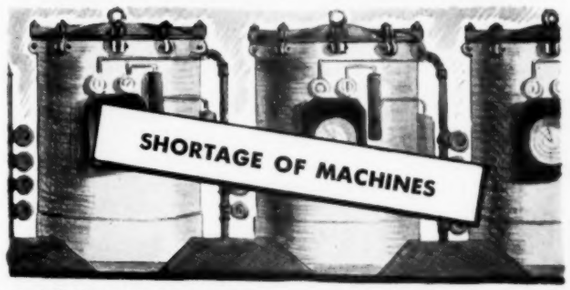

The New Taylor Fulscope Controller, Protecting America's Power to Produce with Not 1 but 5 Forms of Control

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TEMPERATURE, PRESSURE, FLOW and LEVEL INSTRUMENTS

The new Sohio research laboratory, adjoining the campus of Western Reserve University in Cleveland, includes 5 special purpose laboratories, large engine testing room, machine shop, offices, and one two-story room for experimental operations

New Laboratory is Contribution To Research in Petroleum Field

THE new research and development laboratory of the Standard Oil Co. of Ohio which was formally opened the first of this year, is now in full operation upon vital research problems linked directly to America's fight for victory. One of its unique features is that it is located upon a university campus, removed from the hustle and toil of the company's refinery. This academic atmosphere assists the fundamental research thinking of the individual and relieves him of thought interruptions that occur in refinery trouble shooting problems, common to most petroleum research laboratories.

The type of research to be conducted may be assumed from President Holliday's statements concerning the function of this part of a refining organization. "Laboratories like this have a man-sized job cut out for them, for through their work we must find the way to use our material reserves, machinery and man power to the best advantage," he said when the laboratory was opened. "With their help, America will be able to speed up the production of all essential war equipment and supplies. Better lubricants will make it possible for machine tools to work faster and with ever greater accuracy in turning out shells, tanks, airplane parts, machine engines and many other things. Better motor oils and aviation gasoline will increase the speed in cruising radii of our bombers and fighting planes. Better asphalts will give us more speed in building air fields and military roads."

Dr. Robert E. Burk, director of the new research laboratory of Standard Oil Co. of Ohio, is also professor of chemistry in the graduate school of Western Reserve University

The research staff at Sohio's new laboratory is an able one, totaling 25 and headed by five PhDs, three chemical engineers and the balance chemists and technicians. Dr. R. E. Burk, its director, is one of the industry's leading technologists. He received his Bachelor's degree from Cornell, his Master's from Harvard, and his PhD. from Oxford University, England, where he was a Rhodes scholar. His career started at Cornell University, where he was a National Research Fellow from 1926 to 1928, when he joined the Western Reserve University staff, where he has remained since. At present, he is a full professor of chemistry in the graduate school of the University. He is at present a Lieutenant Commander in the U. S. Naval Reserve and has been chairman of the Committee on Catalysis of the National Research Council since 1938. He has also organized a series of lectures at Western Reserve University entitled "Frontiers in Chemistry", where some of America's distinguished scientists lecture. He has published many papers, been granted patents, and elected to honorary fraternities such as Sigma Xi, Tau Beta Pi, and Phi Sigma Phi.

As a consultant, the laboratory utilizes the services of

Prof. H. P. Lankelma of Western Reserve University chemical staff, who obtained his PhD. from the University of Iowa. Doctors E. C. Hughes, L. A. Skowsky, and C. H. Whittaker, also of the laboratory staff, obtained their degrees from Cornell and Western Reserve, respectively, and all started their industrial careers with the Standard of Ohio research department.

The organization of Standard's research laboratory is tied in with the University through the interchange of library facilities and some research projects. The company is sponsoring four fellows who are studying for their doctor's degree in chemistry, and also employs ten chemistry students part-time in the laboratory.

The organization chart of the Standard Oil Co. of Ohio shows George W. Hanneken, as vice-president in charge of refining, to whom department heads report directly. These men consist of Dr. Burk, in charge of research, E. B. McConnell, in charge of process control and the plant superintendents of the six divisions, namely: No. 1 works, Cleveland, C. H. Metz; No. 2 works, Cleveland, L. B. Helm; Toledo, F. J. Sanders; Solar, J. R. Cuthbert; Latonia, Kentucky, A. H. Buchanan; and the lithograph and can factory, H. B. Gifford. The company's five refinery control laboratories do not come under Dr. Burk's direction, nor do the two experimental laboratories located in refineries. Messrs. McConnell and Burk work closely together, however, on all research and development problems.

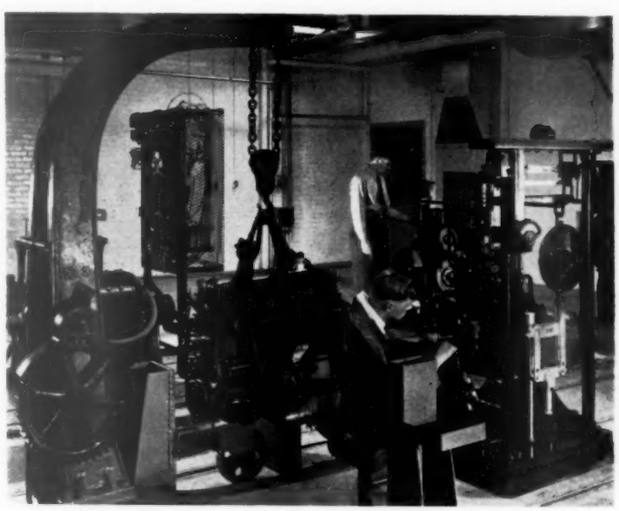
The laboratory grounds cover an area outside the laboratory building itself sufficient to house a boiler plant and equipment for other utilities, a parking lot for employes' cars, and space to erect outdoor experimental equipment if necessitated. The laboratory building itself, laid out on two floors, is composed of many structural features that could well be utilized by other organizations. Outside windows are all of frosted glass, insuring privacy and lack of distraction, while the inside partitioning is transparent glass, enabling the supervisor to observe the operations in all parts of his department. A ventilating system, especially designed to meet the requirements for control in each laboratory and engine testing room, delivers a complete change of filtered air through the building every six minutes.

On the upper floor of the building, where most of the exploratory research is done, there are seven offices, a large chemical stockroom housing equipment for glass washing and glass blowing, a library, a balance and microscope room, a storage room, analytical laboratory and a large general laboratory. All the offices are equipped with modern lighting fixtures, soundproof ceilings, excellent ventilation and an inter-communicating phone system. The library is stocked with texts and periodicals on the subjects of petroleum, chemistry, and engineering. Literature and patent searches are facilitated here.

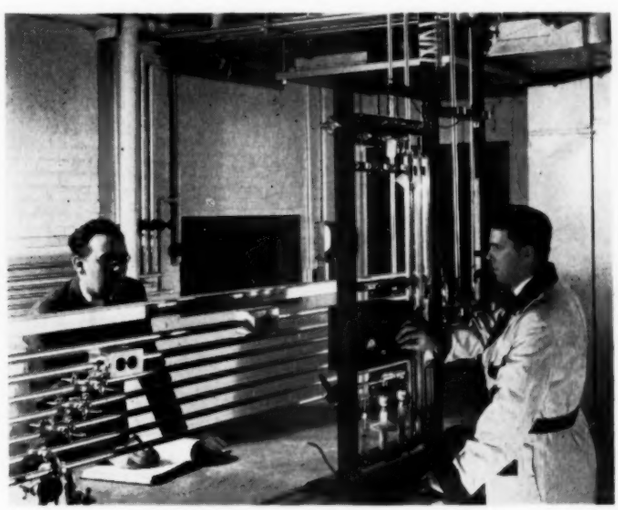
The large laboratory room accommodates about 12 research chemists. As may be noted in the photograph, the center of each bench is equipped with seven utility lines, providing 110 voltage current, high voltage current with a capacity of 200 kilowatts, air, vacuum, gas, steam, and water respectively. The hood in this laboratory extends from the ceiling to the floor and can accommodate several gas evolving experiments. The adjoining organic analytical laboratory is also well equipped.

The chemical stockroom is well laid out and contains over 2000 organic chemicals, including many rare ones not available elsewhere in this locality. A glass blowing shop and dish washing equipment is also provided in this room. Just off this space is the locker room, provided

Director Burk, left, and Prof. H. P. Lankelma, of Reserve University chemical staff, consultant on the Sohio research staff, in the library of the new laboratory



The dynamometer and portable crane in a corner of the automotive laboratory, on the first floor of the laboratory building. Lower right corner shows trenches with steel gratings in which all piping is laid



A corner in the general laboratory. Dr. E. C. Hughes, senior supervisor of experiments, records observations being made by W. E. Scovill, junior supervisor, on a Podbielniak fractional distillation apparatus

with all toilet facilities. For emergency use, due to contact with hazardous chemicals, the laboratories are equipped with automatic showers.

As mentioned previously, most of the research exploratory work is done in these upper laboratories. When a project appears to have commercial possibilities it is transferred to the lower floor where semi-works equipment is provided. Visitors are not permitted to inspect the operations on this floor since, in addition to the company's new processing development, some work is being conducted in co-operation with the army and navy. This lower floor consists of a low ceilinged experimental laboratory, a cold-room, the automotive laboratory, the shop and high ceilinged pilot plant room. While details of the experimental apparatus installed in these rooms cannot be described, some features of the type of construction may be seen in the accompanying picture of the corner of the automotive laboratory. Many safety features have been provided and all the piping, which is removable, is in trenches with steel covers.

The semi-works, or pilot plant room, extends to the roof, which is provided with a removable cover so that extra high columns may be installed, or it may act as an emergency pressure relief valve. The machine shop and its equipment must be a source of great satisfaction to the chemical engineers who will design and maintain the small scale metal equipment called for in their new processes. The mechanics employed in this shop are of the highest caliber.

In addition to the cold-room, where experiments may be conducted under any atmospheric condition desired, a solvent room is provided which is well insulated and heated to insure comparatively high temperature conditions to maintain high melting stocks in a fluid state. The automotive laboratory is well air-conditioned and equipped with several engines for experimental work, such as the CFR, the Chevrolet test, and the airplane test engine for research. Dynamometers may be attached to these engines for measurement of power output and control of the operation.

It is unfortunate that some of the research achievements of this laboratory cannot be listed, since it publishes but little except through the university and depends upon its patents to speak for it. The organization has been particularly active in studying catalytic reactions. They have also done some particularly good work on measuring the performance of lubricating oils in practice. We have been requested, however, not to mention any present specific researches.

While some of the developed processes may be licensed, the primary object of the Sohio research organization is to meet the need for developments within the operating company. There is, however, an excellent reporting system and each laboratory notebook is carefully filed for future reference. The economics of the laboratory is not particularly important, since the Standard Oil Co. of Ohio maintains a broad view that research will always justify itself in capital expenditures. They know that research is an important part of their organization and not an overhead. Their contribution to war defense work justifies this principle. They are constantly working on the improvement of all refined products and by truck transportation they are able to quickly obtain large samples of all products from their nearby refineries.

In the opinion of Dr. Warren Guthrie, Director of Public Relations of Western Reserve University, the working arrangement between the university and the Standard Oil Co. of Ohio is a genuine co-operative enterprise. He feels that Western Reserve is the only university with as close a working agreement with industry. We agree with him and offer to Sohio our congratulations and best wishes for many outstanding research achievements, since it is primarily through education that a nation becomes great.

New Patents

Compiled by E. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.

December 30, 1941

Alkylation of paraffin hydrocarbons—Aristid V. Grosse and Carl B. Linn, Chicago, Ill., assignors to Universal Oil Products Co. Filed Dec. 31, 1938. No. 2,267,730.

Catalytic conversion of hydrocarbons—Charles L. Thomas and Herman S. Bloch, Chicago, Ill., assignors to Universal Oil Products Co. Filed Aug. 21, 1939. No. 2,267,766.

Catalytic process for treating hydrocarbon oils—Robert P. Russell, Millburn, N. J., assignor to Standard Oil Development Co. Filed Feb. 9, 1939. No. 2,268,094.

Cracking using synthetic catalytic compositions—Gerald C. Connolly, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Dec. 6, 1938. Nos. 2,268,109 and 2,268,110.

Catalytic cracking method—Durand Churchill, Jr., New York, N. Y., assignor to Standard Oil Development Co. Filed Jan. 26, 1939. No. 2,268,187.

Isomerization process—Charles N. Kimberlin, Jr., Baton Rouge, La., assignor to Standard Oil Development Co. Filed Mar. 23, 1940. No. 2,268,401.

High film strength lubricant and method of preparing same—William A. Whittier, Kenilworth, Ill., assignor to Pure Oil Co. Filed Dec. 23, 1939. No. 2,268,232.

Ignition promotors for Diesel fuels—Gould H. Cloud, Elizabeth, and Louis A. Mikeska, Westfield, N. J., assignors to Standard Oil Development Co. Filed July 21, 1938. Nos. 2,268,382 and 2,268,384.

Magnesium and aluminum soap (lubricating) grease—Herbert C. Freuler, Berkeley, Calif., assignor to Union Oil Co. (Calif.) Filed Nov. 18, 1938. No. 2,266,544.

December 31, 1941

Method of processing hydrocarbons to produce motor fuel—Marvin L. Chappell, Berkeley, Calif., assignor of one-half to James L. Weir, Los Angeles, Calif. Filed Mar. 4, 1938. No. 2,266,848.

Alkylation of hydrocarbons—George B. Hatch and Ernest F. Pevere, Beacon, Louis A. Clarke, Fishkill, and Frank H. Bruner, Beacon, N. Y., assignors to Texas Co. Filed Aug. 30, 1939. No. 2,267,097.

Manufacture of diesel fuel—Marcus T. Kendall, Long Beach, Calif., assignor to Texas Co. Filed June 3, 1939. No. 2,267,109.

Heating hydrocarbon fluids—John H. Rickerman, River Edge, N. J., assignor to Gasoline Products Co. Filed May 6, 1939. No. 2,267,170.

Manufacture of motor fuels—Arthur R. Goldsby, Beacon, N. Y., assignor to Texaco Development Co. Filed Aug. 4, 1938. No. 2,267,457.

Treatment of hydrocarbons — Arthur R. Goldsby, assignor to Texas Co. Filed Aug. 18, 1938. No. 2,267,458.

Diesel fuels—Leonard M. Leum, Lansdowne, Pa., assignor to Atlantic Refining Co. Filed Sept. 24, 1938. Nos. 2,266,776 and 2,267,701.

Inhibiting formation of natural gas hydrates—Benjamin Miller, Richmond Hill, N. Y., assignor to Cities Service Oil Co. Filed Apr. 25, 1936. No. 2,266,981.

Dewaxing aid—Frank W. Hall, New York, N. Y., and Wilfred N. Meyer, Pryse, Ky., assignors to Texas Co. Filed Oct. 4, 1938. No. 2,267,093.

Dewaxing aid—Edwin C. Knowles Beacon, N. Y., assignor to Texas Co. Filed Aug. 23, 1938. No. 2,267,111.

Treatment of hydrocarbons (lubricating oil)—William A. Smith, Hamburg, N. Y. Filed Mar. 10, 1938. No. 2,267,142.

Method of making aluminum soaps—Charles J. Boner, Kansas City, Mo., assignor to Battenfeld Grease & Oil Corp. Filed Jan. 17, 1940. No. 2,267,148.

Composition for preventing sunburn — Arthur B. Hersberger, Lansdowne, and Henry C. Cowles, Jr., Philadelphia, Pa., assignors to Atlantic Refining Co. Filed Jan. 5, 1940. No. 2,267,200.

Extreme pressure lubricant—Franz R. Moser and Dirk R. Nilk, Amsterdam, Netherlands, assignors to Shell Development Co. Filed Aug. 2, 1937. No. 2,267,337.

January 6, 1942

REFINING

Treatment of hydrocarbons—Samuel S. Allender, Chicago, Ill., assignor to Universal Oil Products Co. Filed Dec. 28, 1939. No. 2,268,557.

Polymerization of hydrocarbons—Robert Pyzel and Clarence G. Gerhold, Chicago, Ill., assignors to Universal Oil Products Co. Filed Dec. 23, 1937. No. 2,268,618.

Apparatus for refining lubricating oils—Carl E. Holt, Kansas City, Mo. Filed Jan. 20, 1939. No. 2,268,706.

Method of operating wax filters—Walter E. Wanner and David F. Renshaw, Olean, N. Y., assignors to Socony-Vacuum Oil Co. Filed Feb. 24, 1939. No. 2,268,788.

Execution of catalytic conversions in presence of ferrous metals—George E. Liedholm and Robert M. Cole, Long Beach, and Irving R. Shultz, Los Angeles, Calif., assignors to Shell Development Co. Filed Sept. 9, 1940. No. 2,269,028.

Alkylation of hydrocarbons—Frank H. Bruner, Beacon, N. Y., assignor to Texas Co. Filed May 11, 1939. No. 2,269,250.

Manufacture of gasoline—Harold V. Atwill and Frank H. Bruner, Beacon, N. Y., assignors to Texas Co. Filed Jan. 27, 1939. No. 2,269,302.

Lubricants—George M. McNulty and John C. Zimmer, Union, N. J., assignors to Standard Oil Development Co. Filed Dec. 5, 1939. No. 2,268,608.

Asphalt composition—Folkert Dijkstra, Amsterdam, Netherlands, assignor to Shell Development Co. Filed Mar. 2, 1940. No. 2,268,810.

Mineral oil composition—Robert C. Moran, Wenonah, and Darwin E. Badertscher and Henry G. Berger, Woodbury, N. J., assignors to Socony-Vacuum Oil Co. Filed May 31, 1939. No. 2,269,282.

January 13, 1942

Recovery of solvent from hydrocarbon oils—James H. McCullough, Philadelphia, Pa., assignor to Atlantic Refining Co. Filed Jan. 24, 1940. No. 2,269,467.

(*Continued on page* R-48)

Additives to Improve Cetane Number Of Diesel Fuels Reported to S.A.E.

SUBJECTS in the petroleum refiner's field discussed at the annual meeting of the Society of Automotive Engineers in Detroit, Jan. 12-16, included automotive fuels and lubricants, but an increased interest appeared to be directed toward high-speed, full diesel engine fuels and equipment. The new diesel-driven, mechanized equipment for warfare has stimulated the thoughts of automotive and petroleum technologists in this direction.

One paper of particular interest to the oil company men present gave a summary of the present status of ignition accelerators for use in increasing the cetane number of diesel fuels.

A progress report from the SAE Engine Wear Research Committee submitted the co-operative results obtained from 23 laboratories in a program which has as its aim establishing (1) whether there are differences in wear characteristics between different lubricants and (2) to what extent wear might be reduced with special addition agents.

Reviews of the two above papers are presented here, with the thought that the petroleum tchnologists interested further may obtain preprints from the Society or from the authors:

"Ignition Accelerators for Compression-Ignition Engine Fuels", by J. S. Bogen, Universal Oil Products Co.

The author points out that the main requirement of the petroleum industry today is to supply sufficient diesel fuel oil for the 10,000 engines in commercial use and the large number in military mechanized units. The requirement for a volatile high-cetane fuel will place a severe demand upon the modern refiner, especially in areas where the crude being charged is not essentially paraffinic, or has an ignition quality below that required by the engine. It is stated that a survey of the engine manufacturers has indicated that the economic advantage of the diesel engine over the gasoline engine would be lost if the price of diesel fuel is increased 12%.

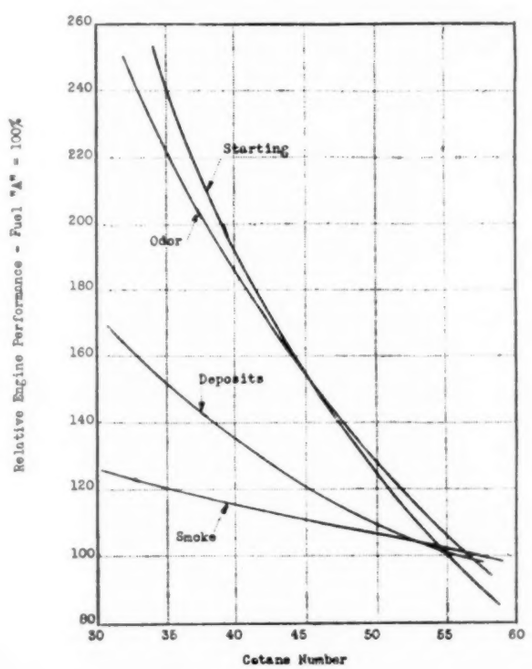


Fig. 1. Relative engine performance vs. cetane number

When a straight-run product meets the specifications, it is the ideal diesel fuel from the refiner's point of view. However, those who do not have a diesel fuel meeting ignition quality requirements, may overcome the difficulty by installing refining processes, such as solvent refining or hydrogenation, or by the addition of organic chemicals as ignition accelerators, such as amylnitrate. The following are portions of this paper:

"Fig. 1 illustrates the requirements of today's engines in terms of relative performance versus cetane number. This is a composite chart showing the effect of cetane number on the starting characteristics, deposits, smoke and odor in terms of an arbitrary reference standard called Fuel A. These data were obtained by the CFR Automotive Diesel Fuels Division from work done on a number of modern high-speed automotive-type Diesel engines.

"The conclusion of this committee was that a fuel for engines of this type should have a minimum cetane number of 47 to provide satisfactory performance. The government has decided that this type of fuel should have a minimum cetane number of 50."

"Table 1 shows the probable cetane rating of straight-run Diesel fuels from various crude sources. It is interesting to note that 26% of the fuels, whose sources cover practically all producing fields in the country, are below

Table 1—Cetane Numbers of Straight-Run Diesel Fuels From Various Crude Sources

Crude Source	Cetane Number	
1. Pennsylvania	62	(1)
2. Pennsylvania	65	(2)
3. Kentucky	52	(1)
4. Michigan	68	(1)
5. Michigan	56	(2)
6. Indiana	52	(2)
7. Illinois	52	(2)
8. Kansas	59	(2)
9. Oklahoma	56	(1) & (2)
10. Louisiana	56	(1)
11. Louisiana	68	(2)
12. Arkansas	56	(1)
13. S. Texas	32	(2)
14. E. Texas	55	(1)
15. E. Texas	57	(2)
16. W. Texas	45	(1)
17. W. Texas	48	(2)
18. W. Texas	63	(2)
19. New Mexico	48	(2)
20. Wyoming	59	(2)
21. Wyoming	68	(2)
22. California	47	(1)
23. California	41	(2)

(1) Universal Oil Products Co. Booklet No. 189, "Ample Future Supply of Diesel Fuel Obtainable from Various Sources" by W. H. Hubner and G. Egloff.

(2) Preprint of S.A.E. paper "A Cetane Number Study of Diesel Fuels" presented at meetings of Oct. 23 and 24, 1941, at Tulsa, Okla. By W. G. Ainsley et al.

Table 2—Cost of Increasing Ignition Quality with Amyl Nitrate

Fuel	Pennsylvania Str.-R.	Pennsylvania Crk'd.	Mid-Continent Str.-R.	Mid-Continent Crk'd.	California Str.-R.	California Crk'd.	E. Tex. Str.-R.	W. Tex. Str.-R.	E. & W. Tex. Crk'd.
Cetane Number	61	42	50	33	41	33	58	47	38
% Dope (by wt) (1)	0	0.40	0	1.70	0.50	1.80	0	0.15	0.80
Required to = (2)	0	0.55	0	2.40	0.80	2.35	0	0.30	1.10
50 Cetane No. (3)	0	0.50	0	2.20	0.75	2.25	0	0.20	1.00
Increase in Cost by Adding Dope-Cents/Gallon of Fuel (3)	0	0.444	0	1.95	0.636	1.96	0	0.168	0.877
Cents/Cetane No./Gallon Fuel	0	0.0555	0	0.1147	0.0707	0.1153	0	0.056	0.073

(1) Acetone Peroxide
(2) Ethyl Nitrate
(3) Isoamyl Nitrate

50 cetane number. Refiners in these areas would have to raise the cetane number of the straight-run stock either by adding ignition accelerators, or by special refining methods."

"We list below, the major specification characteristics for the so called all purpose Diesel fuel. These figures are taken from U. S. Army Specification No. 2-102A.

Cetane Number, min.	50
Distillation:	
90% point, °F., max.	650
End point, °F., max.	700
Flash point, closed cup, °F., min.	150
Carbon Residue on 10% Bottoms, % max.	0.2
Sulfur, % max.	1.0
BS&W, % max.	0.05
Ash, % max.	0.01

	Lowest Anticipated Atmospheric Temperature, °F.			
	20° or above	0°	—20°	—40°
Viscosity Range SSU @ 100° F.	35.0-40.5	33.3-40.5	32.6-40.5	31.9-40.5
Pour Point, °F. max.	0	—20	—40	—60
Cloud Point, °F. max.	10	—10	—30	—50

"Table 2 indicates the cost of increasing the ignition quality of various fuels, both straight-run and recycle stock, with amyl nitrate. . . .

"It is interesting to note that the peak cost for a California cracked stock amounts to approximately 0.12c per cetane number per gallon, or, it would cost 1.96c per gallon to raise the average California straight-run fuel to 50 cetane number."

"The effects of three different ignition accelerators, i.e., ethyl nitrate, isoamyl nitrate and acetone peroxide, upon addition to straight-run and cracked stocks are shown in Fig. 2.

"It is interesting to note that fuels of high cetane

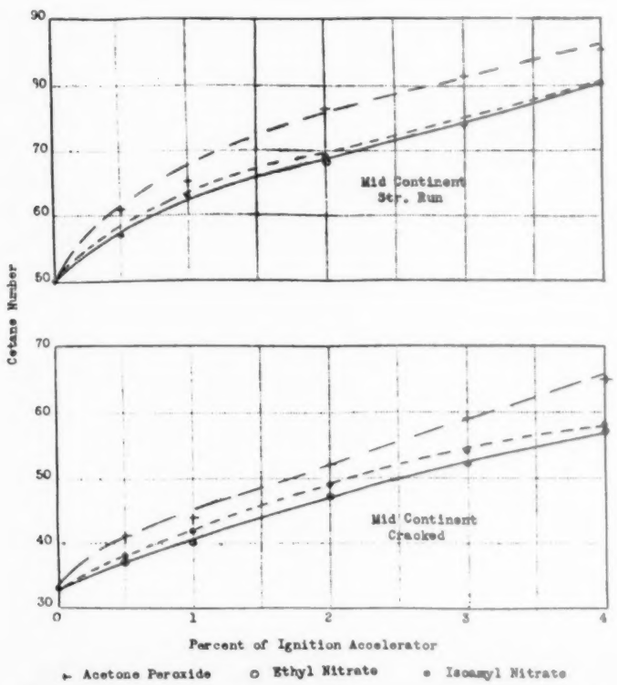


Fig. 2. Susceptibility of Mid-Continent straight-run and cracked diesel fuels to ignition accelerators

number are more responsive to additions of ignition accelerators than those of low cetane number."

"All data accumulated thus far show that ignition accelerators have a very minor effect on economy or power output of the Diesel engine; that is to say, if we compare a fuel of 50 cetane clear or a fuel which has been brought to 50 cetane by the introduction of a minor amount of ignition accelerator, the economy obtained and the power of the engine will be approximately the same."

"Data obtained from the Fairbanks-Morse six-cylinder, Model 36A, 4¼" bore by 6" stroke Diesel engine indicate that, as the cetane number of the fuel is increased, whether by the addition of dope or by using a fuel whose inherent cetane number is high, the engine roughness and the rate of pressure rise are both reduced."

"The effect on the economy of the above mentioned engines when increasing quantities of amyl nitrate are added to the fuels is given below:

Fuel	Cetane No.	Fuel Rate, Lb BHP/Hr.
Mid-Continent Cracked	36.3	0.455
+ 1% amyl nitrate	46.0	0.460
+ 2% amyl nitrate	52.0	0.464
+ 3% amyl nitrate	57.0	0.464
Mid-Continent Straight-Run	55.0	0.438
+ 1% amyl nitrate	68.9	0.441
+ 2% amyl nitrate	75.5	0.445
+ 3% amyl nitrate	80.5	0.452

"The following conclusions are in order:

"1. The use of ignition accelerators is a practical means of improving the cetane number of Diesel fuels.

"2. Amyl nitrate is the most likely ignition accelerator to be used because it is the only one which has had any commercial development at this time.

"3. The cost of increasing the cetane number with ignition accelerators is dependent upon the susceptibility of the individual stock and the increase necessary, as well as the ignition accelerator chosen. The average cost will probably be approximately 0.10 cents per cetane number per gallon.

"4. Ignition accelerators tend to reduce the flash point of usual Diesel fuels below the legal limits.

"5. Ignition accelerators tend to increase the Conradson carbon on the 10 per cent distillation bottoms but do not materially increase the carbon deposit formation in the engine.

"6. Fuels to which large quantities of ignition accelerators have been added tend to show a poorer economy than those of equivalent cetane number by virtue of their natural properties.

"7. Engine roughness is materially reduced by increasing the cetane number with ignition accelerators. However, the completeness of combustion is not affected.

"8. Ignition accelerators have little effect upon the starting ability of a Diesel fuel regardless of the quantity added.

"9. Some ignition accelerators may have serious corrosive effects. There is too little data to allow prognostication at this time. Before any extensive use is made of those materials, a complete study of the corrosion tendencies should be made.

"10. It is doubtful at this time whether or not ignition accelerators can be economically justified. West Coast fuels will need their cetane number increased by some

method and it would seem most practical to use a combination of solvent extraction and small quantities of ignition accelerators. The solvent refining process will increase the ignition accelerator susceptibility of the fuel markedly.

"11. It will be approximately one year from the time a commercial demand arises before amyl nitrate will be available in commercial quantities."

(Another table while not referred to in the accompanying review of this paper is published herewith (Table 3), as the data will be of interest to refiners in showing the effect of various isomeric alkyl nitrates in improving cetane number.

Table 3—Cetane Improvement for Various Alkyl Nitrates

Alkyl Nitrate	Cetane Number-Base Fuel* Plus 1.5% Alkyl Nitrate	Increase in Cetane Number
Mixed Amyl Nitrates	63	19
n-Amyl Nitrate	67	23
n-Butyl Nitrate	63	19
iso-Propyl Nitrate	61	17
Octyl Nitrate	63	19
Cyclohexyl Nitrate	66	22
sec-Hexyl Nitrate	62	18
sec-Amyl Nitrate	64	20
iso-Amyl Nitrate	65	21
n-Hexyl Nitrate	64	20

*Cetane number of base fuel = 44.

(Appended to the paper is an extensive and excellent literature and patent search covering the field of Diesel fuel ignition accelerators—Ed.)

"Co-operative Engine Wear Studies" (A report by the Analysis Subcommittee on the results of co-operative wear studies by the S.A.E. Engine Wear Research Committee) by F. L. Miller, A. L. Beall, O. C. Bridgeman, and H. A. Everett.

This paper covered the results obtained to date in a co-operative study of engine wear and of the possible effected of lubricating oils on wear. This program has been in progress for more than five years, and a total of 23 laboratories have participated in its various phases. The investigation has been carried out in four separate sections, in which a total of 10 different oils have been employed as follows: The program is described as follows in the paper:

"**Section I:** Oils A and B, Oil A being an SAE 10W Pennsylvania grade mineral oil, and Oil B being a blend of essentially the same base with 5% sperm oil. These were selected for the introduction studies to determine whether the known oiliness properties of an essentially non-commercial "oiliness" material, such as sperm oil, could be demonstrated under engine operating conditions. The viscosity of Oil B was adjusted to equal that of A, to eliminate any possible differences due to viscosity.

"**Section II:** Oils C and D, Oil C being an SAE 30 straight mineral oil, and Oil D being a blend of Oil C with a commercial oiliness additive. These were studied next, to extend and further confirm the results and trends observed in the work under Section I.

"**Section III:** Oils X, Y, and Z, representing three typical aviation engine lubricants. Oil X was an uncompounded 120 second grade aviation oil, and Oils Y and Z each were blends containing oiliness additives of types known to be giving relatively satisfactory performance in commercial aviation practice.

"**Section IV:** Oils AA, AB, and AC, also 120 second grade aviation engine lubricants. Oil AB was a straight mineral oil, and Oils AA and AC contained commercial additives to improve oiliness properties."

Table 1 presents representative inspection and other pertinent data on the oils used in the program.

The results of Series I tests were somewhat inconclusive it was stated. Conclusions offered by the 9 participating laboratories differed considerably. Most laboratories concluded that wear was low or normal, and that there was no difference between the wear characteristics of A and B. One or two laboratories, however, found that under some conditions Oil B showed less wear than Oil A.

Although the data from the first part of the program did not lead to conclusions of a very definite nature, they were considered by the committee to have shown enough promise to justify extending the work further.

In Section II a total of eight laboratories reported results on oils C and D, where the data were obtained in single-cylinder engines and from various types of laboratory friction or wear tests. All together four laboratories indicated oil D better on some laboratory tests, and four indicated no difference. But none indicated C to be superior. The trend of the engine results somewhat paralleled the friction and wear data. One laboratory reported lower wear with oil D, while another reported lower ring weight losses but higher total metal losses. Two laboratories reported no difference between C and D.

Sections III and IV were investigated because "In spite of the interesting nature of the data obtained on the A, B, C, and D oils and the trends which were indicated, it was not possible to properly evaluate the results in terms of actual field performance, partly because the information passed on to the committee by the automotive manufacturers and others indicated wear of automotive engines to be either very slight or too small to be significant, but mostly because there appeared to be no well-established, sound field data relating to the problem.

"On the other hand, wear in aviation engines, particularly of piston rings, was recognized to constitute a more definite and concrete problem. Furthermore, a rather extensive background of field experience had been built up by operators and engine manufacturers and was available to the committee. In addition, an immediate need for suitable laboratory tests which might serve as guides in evaluating or specifying aviation oils was indicated by several members of the committee. Therefore, rather than embark on a long and extensive program of field tests with the A, B, C, and D oils, it seemed more desirable to expand the type of work that had already been done by extending the program to include several aviation oils on which a certain amount of experience and background was already available.

"Two series of three each of aviation grade oils were selected for these last programs. One series, designated as Oils X, Y, and Z, consisted of a representative 120 grade aviation oil, Oil X, and of this same base blended with two recognized and successfully used additives, Oils Y and

(*Continued on Page R-48*)

Table 1—Inspections on Engine Wear Research Committee Oils

	Section I		Section II		Section III			Section IV		
Oils:	A	B	C	D	X (AB)	Y (AA)	Z	AA (Y)	AB (X)	AC
Gravity	29.6	29.5	26.9 28.4	27.2 28.7	28.3	28.0	28.2	28.0	28.3	27.7
Flash Point, °F.	410	415	455	425	505	505	540	505	505	500
Fire Point, °F.	470	475	510	490	565	565	610	565	565	565
Vis/100° F.	175	169	566	495	1162	1124	1541	1124	1162	1091
Vis/210° F.	45	45	63.5	61.0	95.7	93.8	123.8	93.8	95.7	92.2
Viscosity Index	101	108	87	86	95.4	95.2	107	95.2	95.4	94.8
Color	4+	4+			5+	5+	8—?	5+	5+	5+
Conradson Carbon	0.09	0.10	0.35	0.32	0.367	0.408	0.59	0.408	0.367	0.222
Pour Point °F.	+5	—5	0	0	+15	+15	+15	+15	+15	+15
Neut. No.	0.042	0.042	0.075	0.014	0.025	0.024	0.075	0.024	0.025	0.123
Sap. No.	....	7.11	1.4	13.4	0.6	1.7	0.93	1.7	0.6	1.0

Ultimate Motor Fuel Will Be Blend Of Pure Hydrocarbons, S.A.E. Told

RESEARCH to secure satisfactory motor fuels meeting present requirements of military operations for greater power, flexibility and operating range will hasten the development of new fuel types it would normally require many years to produce, it was brought out in a paper given at the S.A.E. meeting, prepared by W. M. Holaday and John Happel, of Socony-Vacuum Oil Co. Inc. Title of the paper was: "A Refiner's Viewpoint on Motor Fuel Quality".

The ultimate fuel will likely be a gasoline consisting of a blend of pure hydrocarbons, each contributing its own particular characteristics, it was stated. Even now, such fuels are theoretically possible from purely scientific considerations. "The result would be a composite fuel of suitable volatility, high power output and low fuel consumption for all super-power demands," it was said. "Some blending agents of very high quality are already available in reasonably large quantities for aviation gasoline production. Commercial isooctane, neohexane and isopentane fall into this category. Certain other compounds, notably aromatics, demonstrate important advantages when burned under rich mixture conditions as used for take-off and fighting operations with highly supercharged aviation engines."

It is beyond question, the paper stated, that further changes in automotive engine design will be accelerated by wartime activity and many of these changes will be for the purpose of obtaining better performance and economy from better grade fuels. The automotive engineers were told that it is of equal importance to develop engine changes to take better advantage of the characteristics of current motor fuels, along the line of better manifolding, better mixture control and better spark advance control.

"It is likely that for some time to come the most economical power plant combination will require an engine capable of using to the best advantage fuels of present day quality," it was stated.

The volumes of gasoline produced annually in this country by the various refining processes were given in the Holaday-Happel paper as follows in approximate figures:

Straight-run	260,000,000 bbls.
Thermal cracking	300,000,000 bbls.
Catalytic cracking	30,000,000 bbls.
Polymerization	18,000,000 bbls.
Alkylation	6,000,000 bbls.

The attached flow chart, Fig. 1, shows the methods in use at present for the manufacture of gasoline, and the relative place of new processes in the general refining operation. The arrangement shown is not necessarily the same as would be used in any given refinery but rather points out the various processing possibilities, it was stated.

In a section of this paper discussing the refiner's part in controlling the anti-knock quality of motor fuels, data was presented on the relation of driving speed to the tendency of cars to knock. The importance of control of knocking tendency at 25 miles per hour was shown, since

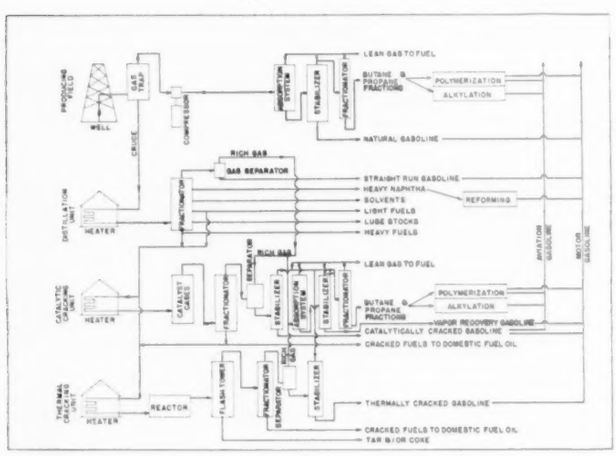
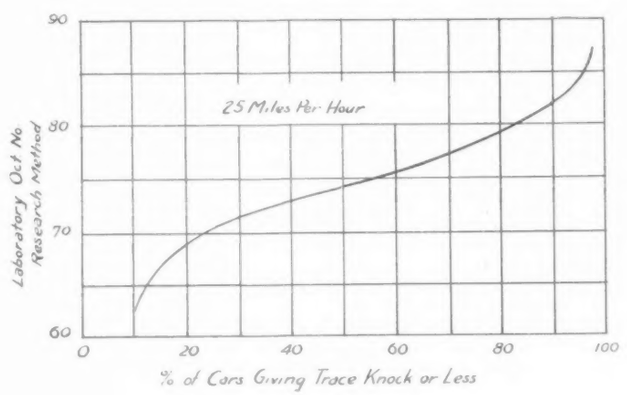


Fig. 1. Flow chart of methods in use today for the manufacture of gasoline



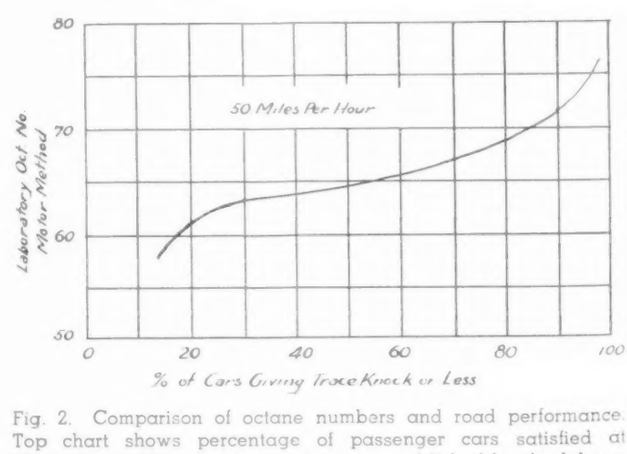


Fig. 2. Comparison of octane numbers and road performance. Top chart shows percentage of passenger cars satisfied at 25 m.p.h. at selected octane ratings as established by the laboratory Research Method. Bottom shows percent of cars satisfied, at 50 m.p.h., by the laboratory Motor Method

this speed is indicative of driving conditions in metropolitan and suburban traffic. See Fig. 2. This portion of the paper stated:

"To properly evaluate anti-knock requirements, the refiner must refer to road anti-knock quality and its relationship to anti-knock quality as indicated by laboratory control methods on his particular fuel. The road octane number test method now in favor was adopted following tests at San Bernardino, Cal., in 1940, by the Co-operative Fuel Research Committee. Although insufficient data has been obtained by this method for a rigorous analysis of the influence of speed on knocking characteristics of all types of gasolines, the treatment of road octane values at low speed (25 m.p.h.) and a higher speed (50 m.p.h.) makes it possible to give some indication of fuel behavior under two important driving conditions.

"The values obtained for the 25 m.p.h. speed are indicative of knocking under the moderate conditions encountered in metropolitan and suburban traffic. Values indicated for 50 m.p.h., which, like the lower speed figures, are for full throttle acceleration, apply to more severe driving conditions such as cross country, hilly country, or heavy duty commercial operation.

"By combining the road octane number vs. the speed curves with data on passenger car octane number requirements, it is possible to evaluate fuel ratings in terms of the percentage of cars satisfied at various speeds. Data on typical commercial gasolines would indicate that fuels having the same laboratory Research Method octane number will satisfy very nearly the same percentage of cars at speeds in the neighborhood of 25 m.p.h. and that fuels having the same Motor Method octane number will satisfy very nearly the same percentage of cars at speeds in the neighborhood of 50 m.p.h. Since low speed acceleration is of predominant importance in most areas, the Research Method octane number is a very satisfactory basis for octane number specification.

"Figure 2 gives a correlation between the two laboratory octane numbers and the percentage of cars satisfied at 25 and 50 m.p.h. This plot is intended as a guide to show how laboratory inspections may be used in a general manner to control the anti-knock quality of gasoline to given performance standards."

Petroleum Pipeline Mileage In U. S. 127,351 in 1941

Total length of crude oil pipelines in the U. S. on May 1, 1941, was 118,350 miles, the Bureau of Mines reports, an increase of 7770 miles since 1936, when the last previous survey was made.* The increase was due almost entirely to trunk line construction, as mileage of gathering lines was practically unchanged.

Total length of gasoline pipelines May 1, 1941, was 9001 miles, not including several hundred miles under construction on that date. No survey was made of gasoline pipelines in 1936 but their length then was estimated at 4600 miles.

Calculated volumetric capacity of crude oil trunk lines in 1941 was 23,448,000 bbls., as compared with 20,218,000 bbls. in trunk lines in 1936. Data on gathering line capacity in 1941 was not reported. In 1936 gathering line capacity was reported at 4,322,000 bbls., making the total capacity for trunk and gathering lines 24,540,000 bbls. The actual volume in the lines in 1941 was reported as 21,533,000 bbls.

Cubic capacity of gasoline lines was estimated at 2,235,000 bbls. indicating an actual content of just under 2,000,000 bbls.

Commenting on technical developments on pipeline construction and operating, the report said: "Although still in the pioneering stage of development, synchronized operation of all stations along a trunk line has proved advantages that promise its wide use on long lines. The system permits better pressure control and prompt detection of line losses, and eliminates the need of 'floating' tanks at pump stations."

Operating pressures of as high as 2000 lbs. have been achieved with safety by the use of forged steel fittings, cast alloy-steel valves, and stronger materials in compressor cylinders and other parts under stress, it was brought out.

High-pressure construction on some new trunk lines has permitted an increase in the distance between pump stations to 100 to 200 miles from the former practice of 40- to 60-mile intervals.

*Bureau of Mines Information Circular 7196, "Crude-Oil and Gasoline Pipelines in the U. S., May 1, 1941", by G. R. Hopkins, assistant chief economist, and F. S. Lott, associate economic analyst, both of Petroleum Economics Division.

Petroleum Research Head Is ACS President-Elect

Dr. Per K. Frolich, director of the Chemical Division, Esso Laboratories of Standard Oil Development Co., Elizabeth, N. J., internationally recognized for his work in the development of synthetic rubber, Jan. 1 became president-elect of the American Chemical Society. He will become president in 1943, succeeding Dr. Harry N. Holmes, head of the department of chemistry at Oberlin College, president for 1942.

In 1940, Dr. Frolich and his research associates presented the first technical report on the discovery of butyl rubber, made from petroleum; the new process climaxing 10 years of co-operative efforts by Standard Oil research, development and management units. In addition to this contribution, Dr. Frolich is also known for his work on transformation and chemical utilization of hydrocarbons, high-pressure gas reactions, catalysis and applied colloid chemistry. He is the author of many technical papers and has been granted numerous patents.

Born and receiving his early education in Norway, he received his master's degree from Massachusetts Institute of Technology in 1923 and doctor's degree from the same institution in 1925. He was associated with the teaching staff at M. I. T. until 1929, when he joined the staff of Standard Oil Development Co.

Dr. Per K. Frolich

New Patents

(*Continued from page R-42*)

Catalytic treatment in stainless steel apparatus — Robert P. Russell, Millburn, N. J., assignor to Standard Oil Development Co. Filed Aug. 19, 1939. No. 2,270,026.

Hydrocarbon conversion and catalyst therefor—Stewart C. Fulton and Boris Malishev, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed Apr. 15, 1929. No. 2,270,044.

Refining of mineral oils—Minor C. K. Jones, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed May 15, 1940. No. 2,270,058.

Hydrocarbon conversion—Edwin H. McGrew, Chicago, Ill., assignor to Universal Oil Products Co. Filed Aug. 31 and Sept. 8, 1939. Nos. 2,270,071 and 2,270,072.

Conversion of hydrocarbons—Jean D. Seguy, Chicago, Ill., assignor to Universal Oil Products Co. Filed Feb. 24, 1939. No. 2,276,086.

Manufacture of catalysts—Charles L. Thomas, Chicago, Ill., assignor to Universal Oil Products Co. Filed June 17, 1939. No. 2,270,090.

Catalytic conversion of hydrocarbons—Charles L. Thomas and Herman S. Bloch, assignors to Universal Oil Products Co. Filed Aug. 21, 1939. No. 2,270,091.

Manufacturing hydrocarbon resins—Maurice H. Arveson, Chicago, Ill., assignor to Universal Oil Products Co. Filed Sept. 30, 1936. No. 2,269,421.

Solid lubricant—Harry E. Johnson, Willoughby, Ohio, assignor to Lubri-Zol Corp. Filed Mar. 3, 1939. No. 2,269,720.

Composition of asphalt saturants — Henry S. Goodwin, East Bound Brook, and Herman D. Winters, Jr., Roselle Park, N. J., assignors to Standard Oil Development Co. Filed Dec. 30, 1939. No. 2,270,047.

Manufacture of hydrocarbon products—Erwin M. Hattox, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Dec. 29, 1938. No. 2,270,052.

Manufacturing pour point depressants for waxy lubricating oils —Eugene Lieber, Linden, N. J., assignor to Standard Oil Development Co. Filed Dec. 14, 1938. No. 2,270,062.

Lubricants—Herman E. Ballard, Berkeley, Calif. Filed Apr. 26, 1939. Nos. 2,270,101 and 2,270,102.

Method of producing alkyl compounds of lead, and manufacture of methyl and ethyl lead compounds—George Calingaert and Harold A. Beatty, Detroit, Mich., assignors to Ethyl Gasoline Corp. Filed Feb. 16, 1938. Nos. 2,270,108 and 2,270,109.

Compounded oil—James O. Clayton and Bruce B. Farrington, Berkeley, Calif., assignors to Standard Oil Co. (Calif.) Filed June 10, 1940. No. 2,270,113.

Production of isometric trioxymethylene—Louis A. Mikeska, Westfield, and Erving Arundale, Union, N. J., assignors to Standard Oil Development Co. Filed Oct. 7, 1939. No. 2,270,135.

Catalyst—Herbert P. A. Groll, Berkeley, and James Burgin, Oakland, Calif., assignors to Shell Development Co. Filed Dec. 29, 1937. No. 2,270,165.

Organix meroxide—Harco J. Tadema, Amsterdam, Netherlands, assignor to Shell Development Co. Filed Feb. 8, 1940. No. 2,270,175.

INDEX TO ADVERTISERS

Refining Technology Section

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This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions

American Meter Co.

Badger & Sons Co., E. B.
Brooks Equipment & Mfg. Co.

Chicago Bridge & Iron Co.

Erie Bolt & Nut Co.
Erie Enameling Co.

Filtrol Corp.

Gasoline Products Corp.
Graver Tank & Mfg. Co., Inc.

Hooker Electrochemical Co.

Jenkins Petroleum Process Co.
Johns-Manville Co.
Johnston & Jennings Co.

Kellogg Co., M. W.
Kimble Glass Co.

Merco Nordstrom Valve Co.

Perco Division, Phillips Petroleum Co.
Petroleum Rectifying Co. of Calif.
Phillips Petroleum Co.

Shell Development Co.
Sun Shipbuilding & Dry Dock Co.

Taylor Instrument Companies R-39

Universal Oil Products R-37

Additives to Improve Cetane Number Of Diesel Fuels Reported to S.A.E.

(*Continued from page R-45*)

Z. The second series consisted of three similar commercial oils, designated as AA, AB, and AC, the AB oil in this case being the uncompounded oil. Actually, there was some overlapping in the selection of these two series of oils by the program committee, since the AB and X (straight mineral) oils were identical, as were AA and Y (containing the same additive).". . . .

"Considering the combined results of the studies on the X, Y, Z and AA, AB, and AC groups of oils, the general trends indicated by the results were quite consistent. Essentially all laboratories, regardless of the type of data submitted, agreed that the straight mineral oils, X and AB, allowed the greatest wear. This was also true of the single-cylinder engine tests. Comparisons among the different compounded oils, Y-AA, Z, and AC were more difficult because of a lack of data obtained on the two groups of oils under identical conditions. The only direct comparison on engine tests was afforded by Laboratory 1, which participated in the programs of both groups of oils. Although the data are not at identical levels, a comparison of the results on the compounded blends with those on the uncompounded oils would indicate that *all* of the blends were about equivalent and definitely better than the uncompounded products."

Abstracts from Current Literature

Use of Selenium and Tellurium Metals for Oil and Rubber Products

Industrial scientists are drafting hitherto "useless" metals to bolster production in the rubber, oil, machine tool, and many other vital defense industries, Drs. G. R. Waitkins and R. Shutt, of Battelle Memorial Institute, Columbus, O., stated in a report to the American Chemical Society.

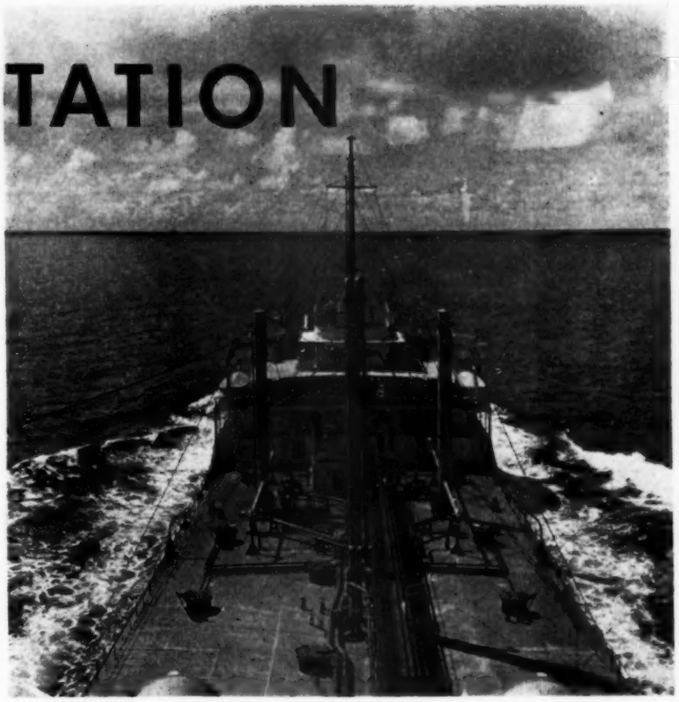
"Metal selenides and tellurides act as hydrogenation and cracking catalysts for the conversion of heavy oils to motor fuels. Research indicates commercial possibilities for selenium for use in motor oils, in fact very outstanding motor oils are now produced which contain selenium compounds as an additive. Used in rubber, selenium and tellurium increase resistance to heat and abrasion and increase resiliency, thus improving, for example, the bouncing qualities of rubber balls. Tellurium rubber cable covering is used for drag lines on heavy excavating and oil-rigging equipment."

Role of Analytical Chemist In Making 100-Octane Gasoline

By J. J. Savelli, W. D. Seyfried, and B. M. Filbert, of Humble Oil & Refining Co., in the Dec. 15, 1941 Analytical Edition of Industrial & Engineering Chemistry.

Various methods for the analysis of mixtures of light hydrocarbons from methane through isopentane were studied and compared as to their accuracy and suitability for routine operations. The methods studied include the automatically controlled Podbienlniak (Model L) column, the Ward method utilizing low-pressure fractional distillation and condensation, a dew-pressure method for n-butane-isobutane mixtures, the determination of olefins by absorption in various reagents and by catalytic hydrogenation, and the determination of isobutene by absorption in various reagents and by its reaction with anhydrous hydrogen chloride. Syntheticaliy prepared mixtures were used for the fundamental investigations. Various methods of sampling and handling liquefied light hydrocarbon mixtures were studied and compared.

OIL TRANSPORTATION



New Maritime Tanker Scale Cuts Owner's Netback Down To 15c on 'Gas', Coastwise

NPN News Bureau

CLEVELAND, Feb. 2. — A fourth revision of U. S. Maritime Commission's maximum voyage charter rate scale on tanker shipments appears likely. Either that, or the other prospect that the government will requisition all tankers for the "duration".

These two courses of action were seen by the tanker trade as the only ones open following issuance of the Maritime Commission's third revision of voyage charter rates last week—a revision which lifted cost of war risk insurance premiums on vessels, crews, crew's personal effects, crew P and I and crew war bonuses from the charterer's account and loaded it on the owner.

Leaves 15c Netback

These costs, at present, amount to about 25c a bbl. on a coastwise voyage. Because the commission has set 40c as the maximum on gasoline and kerosine from the U. S. Gulf to most Atlantic coast points, this leaves the tanker owner with a netback of 15c a bbl. Normally, many tankers are laid up by their owners when the coastwise gasoline rate reaches as low as 15c. Boat men say this is less than the cost of operation. Now, with operating costs higher, boat men brand the rate as "ridiculous".

Effect of the new revision has been to stymie whatever open business there may have been or might be developed in the tanker market. Some reports even are that "directed" charters — those requested by the government to certain charterers — are also stymied. One tanker owner is reported to have flatly refused to sail his vessel under conditions of the newest revision, saying he would have it requisitioned first.

Cuts Compensation

Charters executed on Jan. 19 brought the owner 40c a bbl. on gasoline coastwise; charters executed on Jan. 20 (effective date of the latest order), still bring him 40c a bbl., but out of it he must spend approximately 25c a bbl. on extra war risk costs. While there is little or no open chartering at present, the rates apparently apply to charters executed under the "owed tonnage" arrangement worked out between tanker owners and the Maritime Commission to divide equally among owners the hardship from tanker requisitionings (such as to the British last summer and to the West Coast more recently). Some tanker owners have voiced their conviction that tonnage loaned should be repaid at rates commensurate with rates prevailing at the time of requisitioning.

Latest schedule of rates issued by the Maritime Commission, as applied to coastwise movements and movements between West Coast ports, are shown in table below. (Complete schedule, including rates to Cuba and other off-shore ports, is published in Platt's OIL-Law-GRAM—Ed).

"These rates include war risk insurance premiums on vessels, crews, crew's personal effects, crew P and I, and crew war bonuses. Extra insurance for St. Lawrence River, customs overtime, cargo taxes, harbor dues, and habilitation taxes (Venezuela) are as customary for charterer's account.

"These rates are designed to equal the time charter scale of January 5th when applied to a typical ship, namely, a steam tanker of 11,361 dwt., 11 knots speed, 27 tons daily fuel consumption and valued for insurance purposes at $75 per dwt.

"For voyages not specifically covered in these schedules, owners should calculate a voyage rate approximately equal to the time charter scale when applied to the typical ship, and submit same for Commission's concurrence.

"The above rates will be incorporated into the Warrant System and will be a condition for the continued holding of warrants now outstanding and will be a condition precedent to the issuance of new warrants."

Maximum Tanker Freight Rates

VOYAGE CHARTERS—GASOLINE—KEROSINE

	FROM:				
TO: U. S. Atlantic Ports, etc.	**U. S. Gulf Cents Per Bbl.**	**Aruba Curacao Cumarebo Puerto La Cruz Las Piedras Cents Per Bbl.**	**Cartagena Cents Per Bbl.**	**Trinidad Caripito Guiria Cents Per Bbl.**	**Tampico Cents Per Bbl.**
One U. S. Port North of Hatteras (Not North or East of N.Y.)	.40	.40	.415	.45	.44
Port Arthur	....	....	....	....	.20
New Orleans	.155	.40	.415	.50	.22
Mobile	.16	.40	.415	.50	.23
Port St. Joe or Panama City	.18	.38	....	.48	.24
Tampa	.21	.37	....	.465	.27
Miami	.25	.30	....	.38	.29
Port Everglades	.27	.30	....	.39	.31
Jacksonville	.30	.35	....	.41	.34
Savannah	.315	.36	.375	.43	.36
Charleston	.32	.36	.375	.43	.36
Wilmington	.34	.37	.385	.43	.38
Norfolk	.385	.39	.405	.445	.42
New Haven, Providence, Tiverton, Fall River	.42	.415	.43	.46	.46
Boston	.445	.415	.43	.46	.48
Portsmouth	.45	.42	....	.46	.49
Portland	.45	.43	.445	.47	.49
Halifax	.49	.44	.455	.47	.53
Montreal	.66	.61	.625	.64	.70

TO: Pacific Ports, etc. From:	**San Pedro**	**San Francisco**	**Port Petrol**
Seattle	.28	.23	....
Portland	.25	.20	....
Honolulu	.46	.44	....
San Pedro	....	.15	.115
San Francisco	.15	....	....

Product Differentials

When port rates are: Add:	**1-29.9c**	**30-39.9c**	**40-49.9c**	**50-59.9c**	**60-70c**
No. 2 Heating oil or similar product	.01	.015	.02	.025	.03
Oil 30° A.P.I. or lighter	.015	.0225	.03	.0375	.045
Oil 20°-30° A.P.I.	.03	.045	.06	.075	.09
Oil 10°-20° A.P.I.	.04	.06	.08	.10	.12
Oil 0°-10°	.05	.075	.10	.125	.15

ODT Division Heads Named by Eastman

NPN News Bureau

WASHINGTON, Feb. 2.—A division of coastwise and intercoastal transport within the Office of Defense Transportation was created last week and ODT Director Joseph Eastman named Ernst Holzborn, executive vice-president of Atlantic Coastwise and Inland Water Carriers Assn., Inc., as head of the new unit. He is from New Orleans, La.

Mr. Eastman also appointed John W. Montigney, of Cleveland, as assistant director of the division of traffic movement in charge of civilian traffic. Mr. Montigney is chairman of the general central eastern conference, Akron, Ohio.

War's Effects on Private Truckers Discussed at Washington Conclave

NPN News Bureau

WASHINGTON, Feb. 2.—Impact of tire rationing on the oil industry, possible pooling of trucks to meet war transportation problems, and the difficulty motor carriers face in meeting even the present volume of traffic because of wartime restrictions on production were brought out at the third annual meeting of National Council of Private Motor Truck Owners, Inc., held here Jan. 27-28.

Director Joseph B. Eastman of Office of Defense Transportation told the meeting he thought his agency should ration trucks and truck tires, and declared he does not at present favor public regulation of private carriers.

Oil Men Named

A number of oil men were elected officers of the Council. J. F. Winchester, manager of New Jersey Standard's automotive division, was elected Eastern Vice-President to succeed T. L. Preble, Tide Water. Elected directors of the council were F. E. Packard, director, Indiana Standard; J. W. Sinclair, manager of Union Oil of California's automotive department; and H. A. McKim, assistant manager of California Standard's motor transportation.

Preventative maintenance and effective operation of private trucks in wartime was the topic of a paper by Gavin W. Laurie, manager of automotive transportation for Atlantic Refining Co. (See p. 28—Ed).

The temper of the meeting showed clearly that one of the biggest worries of private truckers at present is the tire shortage. A round-table of experts discussed the effects of tire rationing, priorities and other war measures on petroleum, agriculture, bakery, chain distributors, dairy, dyeing and cleaning, and laundry industries.

It was on this extemporaneous round-table that Mr. Sinclair, who is from Los Angeles, and Leo Huff, Chicago, of Pure Oil, discussed tire rationing with respect to the oil industry.

More Direct Hauls

Mr. Sinclair discussed efforts to save equipment by using larger tank trucks for deliveries direct from refinery or terminal to the service station, bypassing the bulk plant. He said, "enormous strides" have been taken in this direction, on the West Coast in particular.

One company, he continued, is distributing about 20% of its total "haul" with about 3% of its equipment.

Naturally, he explained, this calls for larger equipment than has been used in the past, and the annual mileage of each truck is greater. Too, the larger trucks operate 24 hours a day, while the smaller trucks work only about 10 hours daily.

Tire Eligibility For Tank Trucks Poses Problems

It is not entirely clear, Mr. Sinclair added, just what the position of the tank truck is under tire rationing regulations. As one of many problems facing the petroleum industry, he cited deliveries of gasoline, diesel oil and stove oil to ranchers and farmers, pointing out the regulations stipulate a truck, to be eligible for a new tire, is not to be used for delivering directly to the consumer for personal, family or household use.

Mr. Huff described the many essential oil industry uses of cars and trucks, pointing out that in many cases, equipment is considered off-the-highway equipment. Many of the men working in the fields require passenger cars and half-ton trucks for transportation, because they are away from the established routes of common carriers.

On top of that, the oil industry uses the wheel type tractor which has to travel over roads, sometimes concrete roads, and therefore, cannot be equipped with steel wheels.

Sees No Help

"Now, I cannot find anything in the rationing order that is going to help us in these particular cases," he said. Many companies undoubtedly have enough equipment to meet their needs for a reasonable length of time, but then it will become acute, he added, appealing for government consideration of these matters now.

Asserting that the number of trucks produced this year will be insufficient to meet civilian demands for normal replacement, Arthur C. Butler, manager of automobile manufacturers' association's Motor Truck Division, said private truck owners would have to pool their equipment "when that step becomes necessary" just as the truck manufacturers are pooling their resources.

Emphasis Placed On Repair Parts

Mr. Butler said government emphasis is swinging more and more toward continuing an adequate production of replacement parts.

In connection with pooling and other emergency measures to meet demands for trucks, W. Y. Blanning, director of Bureau of Motor Carriers, Interstate Commerce Commission, said the ICC had private truckers, in one case, lease equipment to for-hire truckers who were not able to meet an immediate Army demand for 50 trucks for an important delivery.

May Requisition Trucks

Truckers, he added, may look for more of the same thing, because the country needs all of the transportation it can obtain. Further, it is "very unlikely" that equipment will be used for "useless" purposes just because it is owned by someone who is not a for-hire trucker.

Arrangements have been made, Mr. Blanning disclosed to give authority for for-hire transportation in a given area within 24 hours.

John L. Rogers, motor transport director for ODT, foresaw difficulties for motor carriers. He said there is a danger that truckers may not be able even to meet present traffic demands, let alone an increase in volume, because of restricted truck production, tire rationing and other war factors.

P. Arnold Anderson, secretary of Private Truck Owners Bureau of California, said the plan for mobilizing West Coast trucks entailed establishment of dispatching offices in key cities like San Francisco, Los Angeles, and San Diego, and called for participation of private and for-hire trucks.

For-hire truckers will handle Army and Navy business, with private trucks used only when truck shortages arise.

Leon F. Banigan, managing director of the council, in a condensation of the Third Annual Report, said threats to private trucking have been intensified by materials and equipment shortages growing out of the war, and declared "your friends in the for-hire motor carrier field are contriving with all the organization and facilities at their command to 'grab,' at the expense of all private motor truck operations, what there is left for civilian use."

L. F. Orr, General Traffic Manager, Pet Milk Co., St. Louis, declared "certain interests are seeking, through enactment of a commodities clause, to restore a semi-government cartel in transportation by depriving producers, manufacturers, distributors, merchants and other citizens of their constitutional right to own and operate facilities to transport their own goods."

Officers Elected

Officers elected, other than Mr. Winchester, were:

President—A. M. Grean Jr., vice-president of Ward Baking Co., New York, succeeding Fred Brenckman, National Grange, Washington, D. C.; Central Vice-President, L. F. Orr, general traffic manager of Pet Milk, St. Louis, succeeding William A. Quinlan, American Bakers Assn.; Southeastern Vice-President—E. M. Fetherston, traffic and wholesale manager, Pender Division, Colonia Stores, Inc., Norfolk, Va., re-elected; Pacific Vice-President—P. Arnold Anderson, secretary of Private Truck Owners Bureau of California, San Francisco, re-elected; and Treasurer—Robert C. Hibben, International Assn. of Ice Cream Manufacturers, Washington, D. C., re-elected.

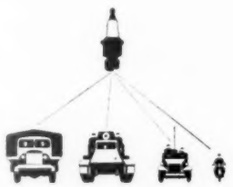
Sinclair Names Tanker After Jack Carnes

NPN News Bureau

NEW YORK, Jan. 30.—Shipbuilding program of Sinclair Refining Co. was completed Jan. 20 with the launching of the new tanker "Jack Carnes" at the Kearny, N. J., yards of Federal Shipbuilding & Dry Dock Co. Mrs. James Otis Rodgers Jr., daughter of Mr. Carnes, sponsored the vessel. There was no celebration at the launching.

A sister ship to the recently completed Sinclair tankers "Patrick J. Hurley," "Albert E. Watts," and "E. W. Sinclair," now in commission, the new tanker weighs approximately 10,500 gross tons and has a carrying capacity of about 130,000 bbls.

CHAMPION SPARK PLUGS



Champion Spark Plugs have become a true ordnance materiel inasmuch as practically everything on wheels, that hauls men, munitions, armaments and supplies, is powered by engines equipped with spark plugs. This is, of course, a primary consideration with all of us, and Champion is proud to be a major source of supply.

We also recognize the fact that keeping the motor cars, trucks and tractors of this nation rolling is likewise important. For these constitute the nation's first and foremost means of transportation, and efficient transportation is what has made America great, and will be a mighty factor in our all out Victory drive.

We are doing everything within our power, and the limitations of material allotments, to meet the unprecedented demand for Champion Spark Plugs. We will not relax our efforts in this regard. Champion standards will always be of the highest—standards which have made the name Champion and the word "dependable" synonymous the world over.

IT PAYS YOU WELL TO STOCK AND SELL—CHAMPIONS!

Washington Personalities

Eastman Devotes 7 Days a Week To Job as War Transport Chief

For the second time in a decade, the swiftly-moving panorama of world events has placed Joseph B. Eastman at the head of the nation's transportation system.

In June, 1933, President Roosevelt named Mr. Eastman Federal Co-ordinator of Transportation, at a time when the nation—and the world—was struggling in the midst of the depression.

In January, 1942, less than a month after America became embroiled in its second World War, President Roosevelt again placed him in charge as Director of the Office of Defense Transportation.

Joe Eastman is not a lawyer, because he was too busy practicing law at the time he was going to school to finish his law course. Years later, an acquaintance of his was asked at a Congressional hearing:

"Is Mr. Eastman a lawyer?"

"No," was the reply, "but he's a damn good one."

It was back about 1913 that Mr. Eastman spent 1 year at Boston University Law School. In 1913 and 1914, he was acting as counsel for various street railway employes' organizations in wage controversies.

That bit of biography is the substantiation his friends give for the remark that he was too busy practicing law to get his degree.

Joe Eastman's is a forceful, masterful personality, seasoned with a sense of humor. He says the Interstate Commerce Commission, of which he is chairman, has the job of "running the four-ring circus" of railroads, motor carriers, water carriers and pipelines.

Joseph B. Eastman

Mr. Eastman feels that trucks—well suited to meet transportation emergencies and bottlenecks because of their flexibility and mobility—have performed admirably in defense and war production. He disagrees with those who believe that motor carrier regulation should be devoted to safety and maximum rate regulations.

States ODT's Policies

Policy of ODT, he said, will be to co-ordinate and lead, but with ultimate power to take action whenever and wherever necessary.

Mr. Eastman said the ICC devotes fully half its time to motor carrier regulation—"no simple task." Personally, he would prefer any time to "regulate a fat, juicy monopoly rather than a horde of struggling and not too well nourished competitors."

Motor transportation is an improvement, for certain types of transportation, over other forms. It is particularly well-adapted for short hauls, because of its speed, flexibility and convenience.

Mr. Eastman, who is single, was born at Katonah, N. Y., on June 26, 1882, the son of a Presbyterian Minister. Soon after his birth, the Eastmans moved to Pottsville, Pa., where he finished high school in 1900, going to Amherst College and receiving his B. A. degree in 1904.

In 1905, he was awarded a fellowship at the South End House, a social settlement in Boston. From 1906 until 1913, he was Secretary of the Public Franchise League; resigning to represent the street railway employes' organizations. In his youth, according to his friends, Mr. Eastman favored government operation and ownership of the railroads, but has "cooled off" considerably since then. Intimates say he now favors private operation with careful regulation to assist efficient and economical operation.

In 1915, he was appointed to the Massachusetts Public Service Commission and President Wilson appointed him to the Interstate Commerce Commission on Dec. 19, 1918. Since then, he has been re-appointed by Presidents Harding, Hoover, and Roosevelt. In 1939, he was elected Chairman of the Commission for a 3 year term. He is a member of Psi Upsilon and Phi Beta Kappa fraternities.

In 1914, Louis D. Brandeis said:

"Joe Eastman has more interest in public service and less in his own career than any man I have ever known."

A few years ago, Mr. Brandeis—by then a member of the United States Supreme Court—said: "It's still true."

The second World War still finds Mr. Eastman serving in a public capacity.

Unlike a lot of Washington bureaucrats, Mr. Eastman does not come in at 9:00 a. m. sharp, to leave again at 4:30 sharp. On the contrary, he is in his office by 8:45, stays until about 6:00, walks over to the Athletic Club for a half-hour of handball, a rub-down and dinner. Instead of going home, he is back at his desk at 8:30, and remains until 11:30.

Schedule Same on Sunday

His schedule, which remains the same on Sundays and holidays, leaves him little or no time for the outdoors. Therefore, he walks at least 2 miles every morning on his way to work.

Sometimes in the summer, he slips away to the woods for 3 or 4 weeks with his Amherst classmate—Fayette B. Dow, general counsel of the National Petroleum Assn. and his closest friend. When the President called on Mr. Eastman to direct defense transportation, the ICC chairman called on Mr. Dow to handle all forms of petroleum transportation.

Company Operation of Stations . . .

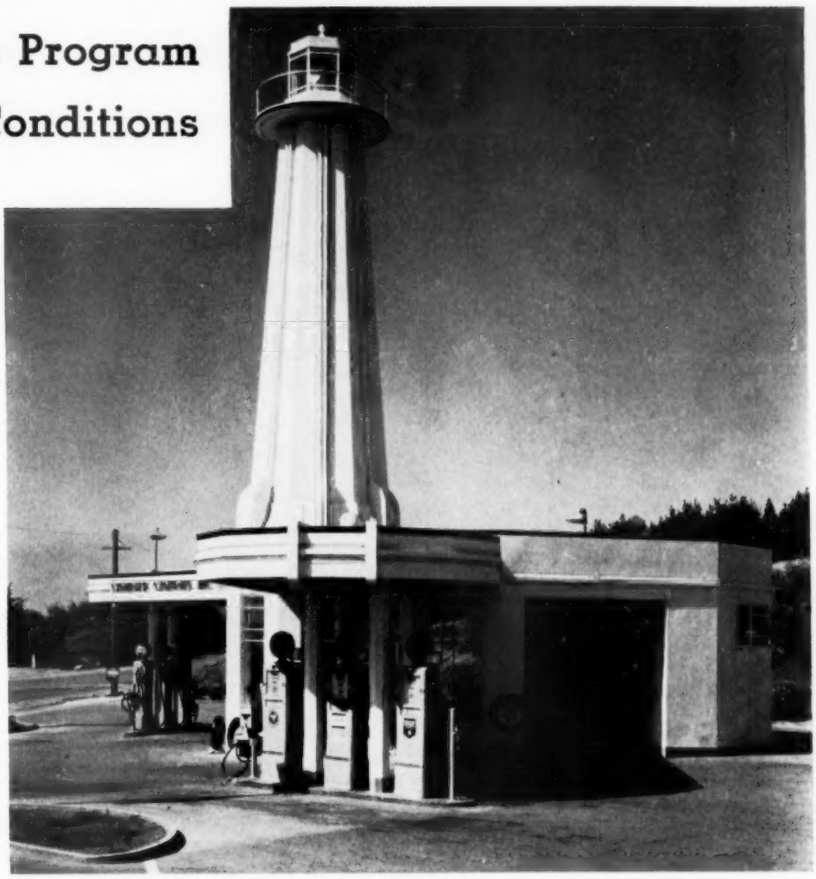
California Standard's Program Meets Test of War Conditions

By V. B. GUTHRIE, Managing Editor

Direct operation of service stations, as practiced by Standard Oil Co. of California, has shown definite advantages in meeting some of the problems growing out of war conditions.

Labor turnover, first, has not been as much of a headache for California Standard as for many other companies whose stations are leased out. Second, the California company believes wartime changes in merchandising programs can be effected with less confusion by working through its own personnel. And in addition, the company can point to uniformity in service and sales methods.

The accompanying article was written before the U. S. entered the war, but California Standard's program of direct operation was proving effective during the speed-up of defense preparations prior to the bombing of Pearl Harbor. Later word, now that the U. S. is on a strict wartime footing, is that the California company's program is working equally well.



A lighthouse with a beacon which is officially charted for navigators is the architectural feature of the new station of California Standard in San Francisco, located on one of the drives along the cliffs overlooking the Pacific

DIRECT operation of company-owned service stations has been maintained by Standard Stations, Inc., retail marketing subsidiary of Standard Oil Co. of California, throughout the last several years, when practically all other large oil companies over the country have been leasing out their stations to individual operators.

Supervision of the stations is in the hands of the division managers of the subsidiary, but all policies are set up and operations closely controlled by its directors, from headquarters in San Francisco.

Standard Stations Inc. markets at retail over an area of approximately 1,000,000 square miles, in 9 states, with a population all told of about 18,000,000, somewhat less than three times as many people as there are in greater New York City. One state, Nevada, has an average of only one inhabitant to the square mile; in California, most densely populated, there are only 44 persons to the square mile. Other states in which the company operates are Arizona, New Mexico, Utah, Idaho, Washington, Oregon and West Texas.

Not all retail outlets selling Standard products throughout this wide area are company-operated. Standard Stations Inc. has approximately 1100 company-operated stations and about 1400 "authorized distributor" stations and also sells through many dealer outlets. The distributor stations are carefully selected outlets, chosen because their location is not a duplication of some company outlet, or that of some other distributor, and because of their type of operation and appearance and housekeeping, of the rest rooms particularly. The system of company-operated stations is maintained in all sections, however, and the traveler will find the red, white and blue chevron signs, which are the company's hall-mark of quality in product and service, and of a high degree of uniformity in appearance of stations and merchandising methods.

Standard Stations, Inc. was organized in 1931 to assume full responsibility for promoting the parent company's retail marketing activities, and principally to take over the operation of service stations. This was to meet a condition created after numerous individually-owned stations and stations of small companies had sprung up, selling on price alone, their supply of products coming from the flush oil fields of the Los Angeles Basin. California Standard, after trying various plans of petroleum marketing, established the subsidiary to provide a system of uniformity in all phases of retail merchandising, with particular emphasis on uniform sales procedures and availability of products and services.

An indication of the progress it has made on this policy of uniformity and centralized control of retail marketing is the fact there are now over 2780 stations in its marketing area under the sign of the red, white and blue chevron, as compared with 1870 company-owned and dealer stations in 1931. Sales revenue in 1931 was about $21,000,000 and this was increased to $49,426,800 in 1940.

The board of directors of Standard Stations Inc. not only passes on long-range operating policies, but also on

A modification of the standard station design of the California Standard, in keeping with the location near the fishermens wharves, in San Francisco

current proposals of any size. Plans for building new stations, or improving properties, are recommended by the field force but before they can be put in effect, they must receive the consideration and approval of the sales and financial executives and the head of the operating and development departments. The six directors of Standard Stations, Inc. have all had many years of experience with this or the parent company. E. J. McClanhan, president, has spent 30 years in sales work for California Standard.

Plans for Future

The company has a long-range development program which calls upon the entire field force, by divisions, to analyze their business once a year and report to the board a program for future development, sometimes as far as 5 years ahead. These studies by the field force are all made at the same time of year, generally in November. They include an analysis of the division's volume of business, its increase as compared with the average for the entire company and as compared with its competitors, and estimates of future business and what investments are necessary to secure it. The board sets up the development program and tries to distribute the new work evenly through the year, as far as possible, in order that its engineering and other departments can spread their work, instead of having rush periods.

Through the 10 years in which Standard Stations, Inc., has been running California Standard's service stations, its merchandising policy has consistently avoided high-pressure selling. Sales contests are not indulged in, because of possible reaction on the customer. Demonstrations to show the motorist the need for replacing some piece of equipment on his car are not used for the same reason. Quotas are not set for individual stations or territories, because of the possibility of over-selling by the individual station, or district, to reach its quota. In place of quotas, stations are expected to show a reasonable increase in business over the preceding year.

Merchandising policies and methods are based on studies made in the field by Standard Stations' own men, and those adopted must apply uniformly over the wide area in which the company operates stations. Only a limited line of accessories is handled and no great amount of service is required to install any of these items on a car. Accessories include tires (in normal times), batteries, spark plugs, lamp bulbs, oil filters, sun glasses, fan belts, battery cables, fuses, valve caps and the like.

Doesn't Sell Canned Oil

The merchandising policy of this company has always been to sell motor oil in quart bottles, filled from tanks in the station building. Company executives said that, because of public acceptance of the integrity of station personnel, the question of fear of substitution had never been a problem. They said the only customers who had indicated a preference for canned oil were eastern tourists who had become accustomed to this method of dispensing oil.

Red, white and blue chevron signs, 3½ by 6 ft., neon-lighted, identify all company operated stations of Standard of California. Stations of authorized distributors carry a similar but smaller sign

The faster moving brands and viscosities are stored at the stations in 30-gal. highboy tanks, equipped with pumps, and the slower moving grades are kept in 10-gal. tanks with molasses gate faucets. To move the oil from the tanks to the crankcases of customers' cars, the stations use quart glass bottles, tightly enclosed with chromium pour-spouts and caps, which keep oil in and dirt and other contamination out. Filled bottles are kept in display stands in the driveway alongside the station building.

Chassis lubrication is sold on the quality of service and products. The average price is $1.40, with large cars bringing more. The job includes going over the 30 to 40 bolts which fasten the chassis to the body and tightening them if necessary. The work may take an hour or more and the company says an average price of $1.40 is necessary if it is to be profitable. The stations do not wash cars but station men will take customers' cars to a garage in the neighborhood.

Standard Stations Inc. company outlets do not have elaborate devices to test the efficiency of a motor, or to show the conditions of the crankcase oil, that are found at some stations in other parts of the country. The company policy is to sell the motorist what his car needs, when it needs it. In other words, company's procedures limit solicitation of its services and products in line with mileage recommendations, or on a replacement basis.

Builds Morale

Another reason for the successful merchandising program of Standard Stations is in the morale it builds up in the station men. They are made to feel that a service station job is not a deadend street, but is an opportunity for advancement, even outside the service station field, into supervisory and managerial jobs.

There are four recognized classes of station employes, based on experience and ability; salesmen, senior salesmen, assistant station manager and manager, with advancing rates of pay. There are also four classes of stations, according to their volume of business.

While the rate of basic pay for salesmen is the same for all types of stations, the commissions are greater at the large gallonage stations. Thus a form of promotion is provided by moving men from smaller to larger volume stations.

The form of commission used by Standard Stations Inc. was designed to be fair to the men and, again, to remove the inducement to apply pressure selling on customers. There are no quotas for any station and no sales

Combination drinking fountain and soft drink cooler is to be found at many stations of Standard of California

A LUCKY NUMBER FOR YOU

A A beautiful clear color

B Exceedingly high resistance to water

C High content of high viscosity lubricating oil

D No change in consistency when pumped through a central distributing system

E Any type of gun will easily pump 1144

F Service Proven lubricating value and durability

NOT AN ALUMINUM BASE LUBRICATING GREASE

It will pay you to investigate "1144 Lubricant"

Battenfeld Grease & Oil Corporation

KANSAS CITY, MO. *"Business is Ingreasing"* MINNEAPOLIS, MINN.

drives are held, with special bonuses offered the salesmen. Instead, a system of commissions is set up for all sales at stations, starting with the first gallon of gasoline. These commissions accrue to the station crew and are paid monthly, divided evenly among the men working there on a man-hour basis. In general, the commissions earned by the station men will amount to approximately 22.5% of their toal pay.

Men Are Trained

The training of men is an important part of the program of Standard Stations. New men are carefully selected and the men at a station are encouraged to suggest men for new jobs there. In general men must be 23 years or older. The "cadets" as the newly-hired employes are called are given 9 days' training in the classroom and in servicing cars under expert supervision. The head of the training school has the authority to let a new man go if it is apparent from his work that he is not adapted for the job.

In their training, the men are taught just where to stand in addressing a customer, the inflection of voice, as well as just what words to use. The value of proper appearance is stressed. The theme of the training is to put the needs of the customer first. Good business manners will build a lasting customer relationship, is the Golden Text of the course.

The company maintains 50 to 60 training schools over its territory. The instructors are all taken from the company's station sales ranks. In addition to the 9-day school for new men, there are 2-day schools for station managers, as a "refresher" course. Here the managers are taught to analyze customers' needs, station accounting and other management functions. There is also a 4-day training school for the authorized distributors.

Labor Turnover Less

This relationship between the company and its men has been such that it has not had as pressing problems in replacing men as some oil companies, even though the lure of jobs in airplane factories and shipyards on the West Coast is as great as at any spot in the country. In addition to a good rate of pay, the station men have liberal vacations with pay. A well-rounded program of employe benefits is also maintained, including an annuity plan, an industrial injury and disability plan, a sickness or non-industrial accident plan and a group life insurance plan. The men work 48 hours a week, with one day off, being classified under Wage-Hour law as outside salesmen.

Maintaining uniform design and appearance of stations and emphasizing housekeeping to a high degree, particularly of restrooms, has helped build up the sales volume for the stations, the company executives state. They believe this high degree of uniformity could not have been achieved with leased-out stations. Buildings have been streamlined and modern materials and lighting used; but the basic design has been kept, so there is uniformity between older stations and new ones. The company has consistently used canopies, which is also the practice of other oil companies in this territory. Station approaches are wide, with pumps placed parallel to the highway.

A unique identification of Standard Stations' outlets is the red, white and blue chevron sign hung on an arm, either from the front of the building or from a pole. The signs are 3½ by 6 ft., in size, three-dimensional, neon lighted. Company owned stations carry the words "Standard Stations, Inc.", at the top of the color bands. Authorized Distributor identification signs are also red, white and blue chevrons, but smaller. These signs have a box on top which reads "Distributor" and this word is illuminated at night. Fully 75% of these emblems are neon lighted. In most cases the chevron sign and the name of the company along the top of the canopy are all the signs on the building. Billboards are not extensively used.

Paid by Commission

California Standard has converted to commission arrangements about half its 800 bulk plants. In the majority of cases the wholesale dealer is the former bulk plant employe, who prefers the commission arrangement because it is permanent for him, whereas, as a straight employe, he would be subject to transfer from one locality to another. The commission paid at each plant varies considerably, depending on the volume and type of business, size of the district, topography and other conditions of the local territory. These wholesale dealers serve the local garages, farms and ranches, small mines and so on, which are off the main highways or where the volume taken on each delivery is too small for the company trucks operating direct from its large terminals to handle. The wholesale dealers operate their own trucks. At small bulk plants the individual does his own delivering, using a combination truck that carries around 800 gal. in bulk, and 2 or 3 bbls., or an assortment of packaged goods.

Delivering of Gasoline to Stations Handled by Separate Agency

The delivering of gasoline to service stations of Standard Stations Inc. is not handled by that company, but by the motor-transport department of California Standard. Here again economies have been effected by placing the complete responsibility for one phase of operations in a specific company agency.

The motor transport department is a non-profit branch of California Standard's business. It buys and operates and maintains all automotive equipment, and charges the company department served by the equipment monthly rentals on a full cost basis. It handles all automotive equipment, trucks in the producing fields, gasoline delivery trucks and salesmen's and company cars.

For example, if a production superintendent wants a hauling job done in the field, he applies to the motor transport department and it furnishes the vehicles and drivers for the work. At the end of the month, that production superintendent receives a bill from the motor transport department for the cost of equipment and driver for the particular job. Likewise, the head of the sales department gets a bill every month covering the rental of each salesman's car, based on the mileage on that car for the period. The sales manager can compare that bill with the volume of business that particular salesman brought in, in estimating its profit to the company. Company executives say this method of handling trucks and cars is more effective in making department heads watch their automotive maintenance costs than when the expense of operating many vehicles is lumped into one general cost item.

The motor transport department has worked out many efficiencies in delivering gasoline to resale outlets. It has been a major factor in the reduction of over 10% in per-barrel marketing expense which the company, in its last annual report, stated had been achieved.

The motor transport department operates twenty 5000-gal. trucks and twenty-five 3000-gal. trucks. These haul from the three company refineries and from 16 water terminals to the company's stations and large accounts, over the company's marketing territory. They haul up to 130 miles from source of supply, generally making two round trips in 16 to 20 hours, with two sets of drivers.

These vehicles are called "skimmer" trucks, because they stay on the principal highways and deliver only to service stations and conveniently located accounts which can take large dumps. They are routed from the terminals. While their drivers may pick up cash or receipts from credit card sales at the stations, they don't wait until the station man counts his cash to see how much gasoline he can take and pay for. In the large terminals, despatchers are maintained for these

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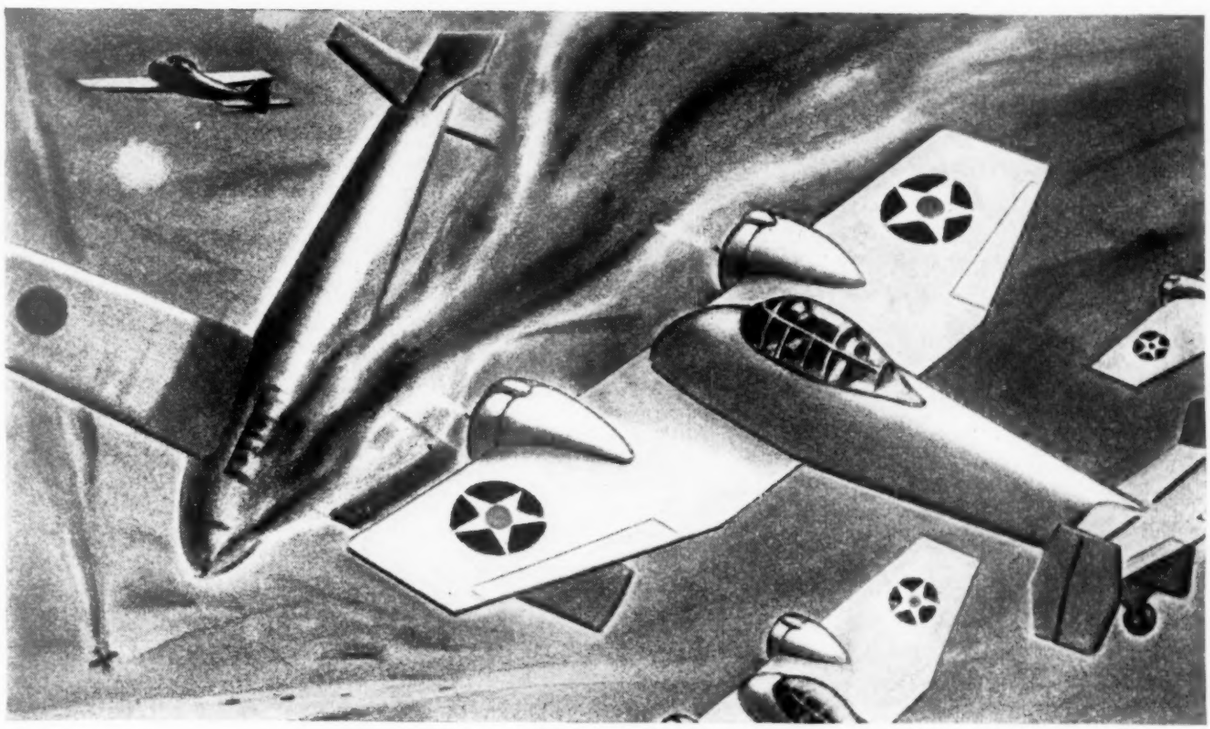

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You may not make planes or any part of a plane, but you can help "keep them flying" by keeping your product safe in transit—by protecting every drop until it is found "all present" in America's roll call of defense.

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trucks, who call up the stations daily and check their inventories and thus know when they can take a full truck load, or a considerable part of it. The dump may be of one, or of the three grades of gasoline carried.

The efficiency of this system is seen in the fact that the average dump of trucks is 1100 gal. A truck frequently delivers 12,000 gal. a day, with only three or four stops being made to the load. In the few hours of the day the trucks are not operating, they are inspected by maintenance men. Cost of operating these trucks has been dropping since present system was put into effect two years ago.

Piping and manifold systems of these units are all seamless tubing, with no screw elbows and fittings, thus reducing the friction loss in flow. Lines, delivery hose and meters are 2½ inches inside diameter. Twelve feet of hose is carried in tubes in the truck skirting, with an additional 5-ft. length, which is sometimes needed. Hose is attached by a quick-coupler. No pumps are used, the flow being by gravity, but a delivery rate of 90 to 120 gal. a minute is achieved.

With these trucks transporting gasoline to the large volume outlets, the delivering of other oil products, both bulk and package goods, is left to the local bulk plant. In some cases the local agent also makes gasoline deliveries, where the amount of a particular grade to be delivered to the outlet is small, or where the frequency of its needs do not fit the gasoline delivery truck schedule.

Deliveries of tires, batteries and accessories to stations are made by commercial trucking lines, from warehouses for this merchandise which Standard Stations Inc. has installed at convenient points. When stations need supplies of this type of merchandise they notify the warehouse and the order is made up and shipped out, deliveries generally being made the following day. The large number of trucking lines which operate throughout this section of the country makes it convenient to use this delivery method and at a saving over delivering automotive merchandise in company vehicles.

Delivery of bulk and package goods to the local bulk plants, aside from gasoline, is made either by rail or by contract trucker.

Types of trucks and semi-trailer units used by California Standard to haul gasoline from water terminals to large volume resale outlets. The trucks are generally 5-compartment, 3000-gal. capacity (upper); the semi-trailers (lower) 8-compartment, 5000-gal. The vehicles cover up to 130 miles from terminals and operate 16 to 20 hours a day, with two sets of drivers. Average dumps are 1100 gal. and, with stream-lined manifold systems, delivery rates of 90 to 120 gal. a minute are maintained. Tank bodies are gray, running gear and skirting red, with the lettering in blue

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Maximum Effectiveness from Private Trucks

By Gavin W. Laurie

With new trucks, tires, parts and accessories in the "hard-to-get" class now, there are many timely points for oil companies in the paper on truck efficiency, presented at Jan. 27 meeting in Washington of National Council of Private Truck Owners by Gavin W. Laurie, manager of automotive transportation for Atlantic Refining Co. Mr. Laurie is a past vice-president of the Society of Automotive Engineers, heading the S.A.E. Transportation and Maintenance division.

Among the points covered in Mr. Laurie's paper, full text of which is printed herewith, are:

Preventive maintenance, how often to check over your trucks, how to check costs, three kinds of routing systems, and methods of checking on effectiveness of each truck's performance.

Effective Preventive Maintenance

There are a large number of successful preventive maintenance schedules now in general use by fleet operators. They may vary in such details as periods of inspection, inspection refinements required by the particular operation, etc., but in the end, they must by necessity cover those parts of the vehicle requiring attention. Since they are successful, they may be paying a return in any one or combination of forms, as, lower overall cost per mile maintenance cost; reduction in road failures or emergency tie-ups; prolonging the life of critical parts, which parts may be difficult, if at all possible to replace at this time.

Gavin W. Laurie . . . director of transportation for Atlantic Refining Co.

Whatever then is the direct result of the preventive maintenance program, it must in the end be translated into some basic factor to the operator which makes it desirable to adopt.

The present national emergency lends added importance to Preventive Maintenance. The importance of truck transportation is now greater than ever before, particularly since those trucks now in operation are called upon to do more work in a given time. In addition, the demand for trucks and their related parts by our armed forces is also increasing constantly, which means but one thing, that there may be times where there are not enough trucks and parts to go around. The answer to that problem is quite obvious, the private trucks will be called upon to continue in operation long beyond those limits that existed before this emergency.

When a vehicle is operating 24 hours a day, carrying its full pay load both ways, and running against the governor, then it is approaching effectiveness. This requires an effective preventive maintenance program that combines minimum inspection time at any one time together with maximum coverage necessary to assure those benefits derived by a system of Mechanical Preventive Maintenance.

Lubrication is the first principle of preventive maintenance, and experience has shown that periodic application of the proper lubricants is necessary to assure economical, safe and trouble-free operation. If we now combine this important lubrication procedure, performed every 1000 miles of operation with a system of inspections, adjustments and tightening, so arranged that the assignment can be completed in about four man hours, we have the first step in this effective preventive maintenance program.

This will be classed as a minor inspection and a careful grouping of the items due for inspection at any one of the 1000-mile lubrication periods is required. Consideration must therefore be given to the frequency of inspection for each of the items involved as dictated by the operations, consistent with the time available for completing the intended work, namely, four man hours. All the necessary minor preventive maintenance inspection items should be completed in a 10,000 mile operating cycle.

In order to adhere to the proposal of effectively limiting the time spent for lubrication and maintenance at any one time, it is quite apparent that the item of major work, which may involve shopping the truck for some extended period, should be eliminated from the regularly scheduled minor inspection. This is predicated on the theory, that, since it is desirous to base maintenance work on factual information, we should have a reason for grinding valves, adjusting engine bearings, replacing rings and piston and other such rush items which are classed as major work.

When to 'Shop' the Truck

A little more detail on this matter of major jobs and their relation to the 1000-mile scheduled lubrication and inspection program is desirable at this time. It has been recognized that in certain forms of application for the preventive maintenance program, scheduling units for major work based on average results of any one group or type of trucks is not satisfactory, since the average by necessity covers poor and good operating units. This is particularly true on such items as valves, engine bearings, and rings or piston assembly replacement. In these cases, the necessary work should be done only when tests on each individual unit indicate the desirability of performing the work. Furthermore then, a study of the averages accrued from operation serve only as a guide when the various tests should be made. The tests themselves then serve as the basis for shopping the truck.

On the other hand, average data obtained during operation, of certain items such as differential rear end assemblies, transmission and clutch, can be used in lieu of tests for opening up these assemblies for the necessary repairs or replacement.

A good example of this latter method of scheduling for maintenance concerns a certain group of trucks on which differential rear failures were chronic. The failures occurred usually on the road necessitating either towing the vehicle to the shop or making emergency repairs on the spot. The maintenance cost was high and the operation suffered accordingly. A careful study of the problem revealed

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among other data, a rather close consistency in the mileage for failure and based on this figure, the units were scheduled for inspection and adjustment at a somewhat earlier resultant operating mileage. The chronic failure of these rears was eliminated.

In summing up this procedure, we have an effective preventive maintenance program divided into three definite and distinct parts.

(a) Lubrication and some inspection or adjustment performed every 1000 miles operation. Each lubrication with inspection item arranged to consume four man hours. All the necessary inspection, tightening and adjustment items completed in a 10,000-mile operating cycle.

(b) All major work, involving the shopping of the vehicle for an extended time, that can be controlled by factual tests to have the work done as dictated by the results of the test.

(c) All other major work, that cannot readily be guided by test methods, must resort to average operation mileage of failures for proper maintenance scheduling to further insure safety and freedom from emergency road failures.

* * *

Obviously, the operator's first concern is the mechanical condition and fitness of the delivery truck. This having been accomplished, he is now ready to consider the problems of operating efficiency.

Effective Operating Factors

The apparent goal of ambitious private operators who are conscious of the profit possibilities in their operation, is low unit cost of delivery.

The spread between manufacturer's cost and the market selling price, embodies warehousing, selling and delivery expense.

Warehousing and selling expense per unit is generally low, except with slow moving products and if volume remains relatively constant, these items are fixed, whereas delivery expense is variable and dependent upon rigid supervision for control.

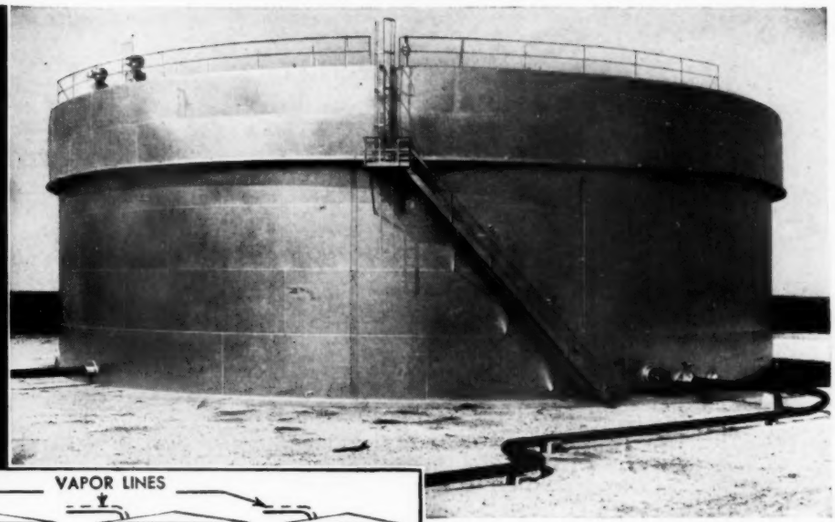
Private carrier operation might well include bulk or freight hauling in addition to delivery to consumer outlets.

In the bulk haul or freight aspect of private carrier operation, large units may be employed to deliver from main warehouse points to smaller warehouse points, at a cost which over all will net a profit compared to contract hauler rates. This profit or savings over the contract rate should be sufficient to establish a 20% return on the investment in the units necessary to do the job. From a wealth of experience 20% return is considered safe.

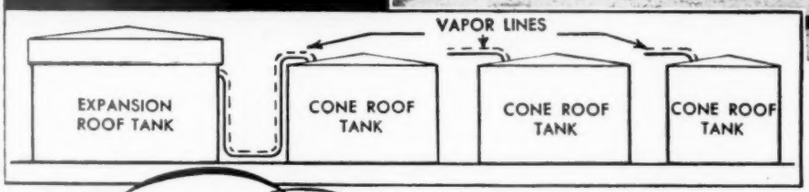
The largest possible unit consistent with state and/or municipal limita-

GRAVER EXPANSION ROOF

STOPS LOSSES *and* MULTIPLIES SAVINGS



Graver Expansion Roof Tank. Diameter, 120 ft. Height, 40 ft. Capacity, 80,000 bbl. Roof lift, 10 ft. Expansion capacity, 114,202 cu. ft. Installed at pipe line terminal of a major oil company.



The contents of a number of cone roof tanks may be protected from evaporation and breathing losses by manifolding vapor spaces of cone roof tanks to vapor space of Expansion Roof Tank.

Millions of dollars worth of gasoline in storage is lost each year through evaporation. That this loss is needless and can be eliminated is a proven fact. It is being demonstrated month in and month out at pipeline and water terminals of many of the country's leading oil companies where Graver Expansion Roofs have been installed.

The Graver Expansion Roof is designed to hold the vapors instead of expelling them. Liquid sealed all around, it enlarges the vapor space as needed, rising and falling as the vapors expand or contract. Furthermore, if cone roof tanks are spaced reasonably close together they can be manifolded into one tank of suitable size, equipped with a Graver Expansion Roof designed to take care of the maximum breathing of the entire battery. And not only are evaporation losses eliminated, but filling losses are reduced to a minimum.

A Graver Expansion Roof is an investment—not an expense. Not only will it quickly pay for itself, but it will continue to earn extra profits through multiplied savings for years to come.

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2. *MODERN PROTECTION.* Latest safety appliances; lowest insurance rates; minimum evaporation losses.
3. *INDEPENDENT OWNERSHIP.* Strictest privacy. We do not buy, sell or refine any commodities.
4. *NO WHARFAGE.* There is no wharfage at our own private docks.
5. *SPEED WITH SAFETY.* Day and night crews, complete facilities, eliminate all shipping delays.
6. *LARGE TANK CAR FLEET.* One car or hundreds, to handle any type of bulk liquids.
7. *NO CONTAMINATION.* Separate pumps, lines, storage zones for dissimilar commodities.

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GENERAL AMERICAN TANK STORAGE TERMINALS

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CARTERET, NEW JERSEY (Port of New York)
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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORP.

tions on weight, size and volume should be selected. Topography of operating territory, type of goods to be hauled and truck design are other items necessary for consideration. These bulk or re-stock units should be operated "around the clock" or 24 hours per day on a definitely scheduled basis.

Loading, unloading and mileage factors should be determined and built into the schedules of these deliveries. It might be possible in many instances to utilize a large unit of the bulk type for delivery to consumers during the day and augment this activity by bulk service work at night. This alternative must be determined by actual study of all items of expense.

In the structure of most private carrier operations the bulk delivery on long range operation is unjustified and profitless compared to contract or common carrier rates, established through return load operation. Private carriers for the most part are concerned with direct deliveries to the ultimate consumer or dealer from well established warehouse centers. These warehouse points should be situated nearest the center of each volume area.

Study Deliveries to Warehouses

Bulk deliveries to stock warehouses whether accomplished by means of the private carriers' units or by contract hauler equipment is important, and should be given careful study. Our subject however should be chiefly confined to trade or consumer outlets, and embrace mainly the operating effectiveness of the delivery units in this type of service.

The same principles of control are employed in both types of operation. Approaching the discussion of this type of service from a primary standpoint of single warehouse distribution, it may be said that the extent of the economic delivery range is determined by the spread between manufacturer's cost and selling price to the limit approved by management.

Distributing areas around each of a successive group of warehouse points may be determined mathematically, having their limits set by formulas determined through the use of cost per unit mile factors, whether these units are in lbs., cwt., tons, barrels, gallons, cases, etc., etc.

To determine these factors the following costs should be procured; viz.:

1. The variable cost per mile.
2. The fixed cost per hour.

It is debatable what costs of truck operation comprise the variable expense and likewise what costs comprise the fixed.

Let us assume for all practical purposes the following divisions.

Variable Expense...	Gasoline Oil & Grease Tires Chassis Repairs Body Repairs
Fixed Expense.....	Depreciation Insurance General Expense License

The total dollars of variable ex-

Vital

IN CONSERVING CRITICAL WAR MATERIALS

Metals and petroleum are among the most essential of war materials. Metals are needed to make more and more planes, ships and tanks. Petroleum is needed to protect and power the entire war machine.

McDonald products are specially designed to CONSERVE metals and petroleum.

Using comparatively little metal themselves, McDonald safety devices protect tanks involving *tons* of the very metals required to meet wartime requirements.

Plate 970-H
Emergency Valve for Storage Tanks. Affords positive and immediate protection for the contents of storage tanks in case of broken line or valve. Fusible links insure automatic closing in case of fire.

More than that, in protecting the tanks, McDonald products also protect their contents. It makes little difference whether such protection occurs in Washington, D. C. or Oskaloosa, Iowa — every drop of gasoline saved, every explosion prevented, every fire forestalled, adds to the country's total supply of metals and petroleum.

Under such conditions, McDonald safety devices are a direct *contribution* to wartime conservation — a means of *preventing* the loss of metals and petroleum in quantities far beyond their own requirements of critical materials.

Plate 925
Economy Tank Vent with Gauge Hatch. Protects storage tanks against the hazards of pressure and vacuum. Reduces evaporation losses.

Plate 955
6" Safety Vent. For Pressure Release Only—No Vacuum Release. EXTRA protection for storage tanks of 21,000 gallons capacity or less. Required in many states—important in all states as an added wartime safety measure.

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pense divided by miles run indicates cost-mile variable.

The total dollars of fixed expense divided by yearly hours assigned indicates cost/hr. fixed.

In order to determine the cost per unit mile, the fixed cost per hour is first converted into cost per mile by dividing the fixed cost per hour by the average vehicle speed.

Assuming the variable cost @ 5.0c per mile
Assuming the fixed cost @ 200.0c per hour
Assuming the average road speed @ 20 miles /hour

Then by conversion *fixed* cost would be 10.0c per mile—added to variable cost of 5.0c/mile, or 15.0c total/mile.

In the instance of the trucks load capacity of 100 cwt., the cost per cwt/mile would be $\frac{\$ .15}{100}$ or $.0015.

To illustrate the use of the cost per unit mile let us confront a problem to be solved:

From a main warehouse point other warehouses, one at Brownsville is stocked with goods at $.05 per cwt. and is 30 miles away, and one at Jonestown is stocked with goods at $.04 per cwt. Brownsville and Jonestown have delivery trucks with rates of $.0020/cwt. mile.

The first portion of the problem is—"How far from the main warehouse may the $.0015 truck operate towards Brownsville until the cost of delivery outward is equal to the (freight rate of $.05 per cwt. plus the cost of delivery by the $.0020 truck inward to the point of cost equality.)

Solution:

$\frac{\$.05}{\$.0015}$ = 33.3 miles. Return miles are included in these cases, therefore the point where the freight cost is absorbed is $\frac{33.3}{2}$ or 16.7 miles out from the main warehouse. At this point the goods in the truck have a unit transportation cost equal to the unit freight cost at Brownsville. Having a $.0015 rate truck at this point and a $.0020 rate truck at Brownsville, the remaining miles to Brownsville will be divided proportionately with the compared rates of the competing trucks, namely:

$$\frac{\$.0015}{\$.0035} \quad \frac{.0020}{} \text{ or } \frac{20 \times 13.3}{35} = 7.6 \text{ miles.}$$

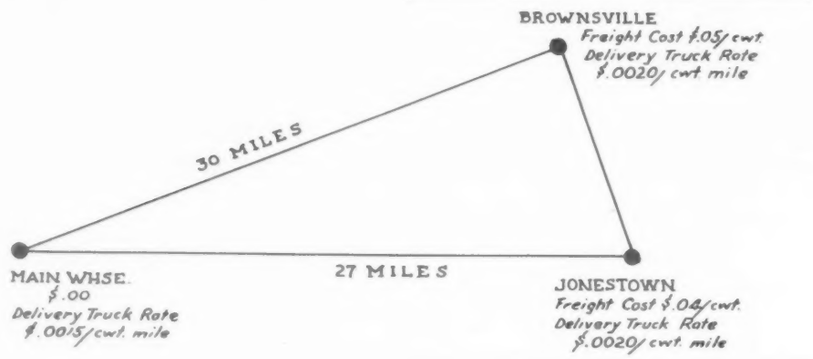
Then 16.7 miles plus 7.6 miles = 24.3 miles, which should be the extreme point of division between the main warehouse and Brownsville.

Proving the Point

24.3 Out	5.7 Miles In
2	2
48.6 Total Miles Out	11.4 Total Miles In
$.0015	$.0020
2430	.02280
486	.05 Added Fght. Rate
$.07290 Cost per Cwt.	$.07280 Cost per cwt

The division between the main warehouse and Jonestown is obtained in like manner.

The division between Brownsville and Jonestown points is obtained by first absorbing the difference in their rates by the truck operating from the cheaper point and then equally dividing the remaining miles, thus establishing the delivery limit between them.



With the delivery areas economically established, we now arrive at the point where routine delivery service is built for each individual warehouse point.

There are three systems of delivery applicable from a given storage point, viz., "the route system of regular days based on positive schedules", "the flexible route system nominally called *Route Dispatch* which absorbs spot orders"; and finally a "dispatch system which places all deliveries on an order basis".

Prior to the detail construction of routes, volume must be determined by daily or weekly period. Additional preparatory measures should be taken, such as:

1. Obtain largest sized truck available to suit needs.
2. Attempt day and night delivery to as great an extent possible.
3. Establish through sales division an educational program to:
   (a) Buy largest possible quantity.
   (b) Maintain high storage capacities for full load deliveries if possible.
   (c) Establish as many first rate credit conditions as possible.

A work sheet properly ruled and lined should be selected to accumulate

customers' names and addresses. If the section being studied embraces only urban territory, their street addresses would be sufficient.

Cities may be divided into sections according to volume.

A captioned column should contain the monthly volume of sales for each outlet. This figure is then reduced to a single day's delivery requirement and the day of service selected. Days of service are allotted each account and should be so grouped by towns or urban sections to minimize miles.

The sequence of delivery is then built up and the units of delivery accumulated successively until a full load is accounted for, following which miles run should be determined. A practical method for the measurement of miles is by use of a large scale map, and a standard map measure wheel, which measures in inches and is converted to miles through the use of the map's "Scale of Miles".

Each day's work is accumulated in loads, miles and delivery stops.

Standards Established

By the use of estimates at the beginning, and later through the use of time studies, standards may be provided for each operation to cover:

1. Plant or warehouse time, and loading.
2. Average rate of speed in M.P.H.
3. Customer contact time.
4. Unloading time per unit.
5. Report time.

Hours are thus accumulated and the proposed load for the day increased or decreased to fit the normal length of shift time. By this actually measured method of routing, a high degree of efficiency may be obtained. If a sufficient number of accounts are so adjacently grouped and a standard regularity in daily service maintained, a monthly check-up on performance is ample. This type of check-up is adequate to cover regularly prescribed deliveries on fixed routes.

The same method of measurement may be employed to check on the operation of "the flexible route system which absorbs spot orders."

All the factors of operation from total loads, hours worked, miles run, units sold, deliveries made, to the final report of the day can be scaled in time on card measuring devices of your selection. By pyramiding each card measurement of activity on the other, a total number of standard hours is revealed by use of the scale "in hours to the inch"; times the number of inches the cards cover.

Another method of checking activity is to convert each standard factor into a multiplier and deduce hours accordingly by application of the individual multiplier to the totals of all items of delivery mentioned above. The amount of the measured hours based on standards, compared to the reported hours establishes a ratio of effectiveness.

This latter use of the standards is better adapted to measuring a single day's work or individual trip, and is

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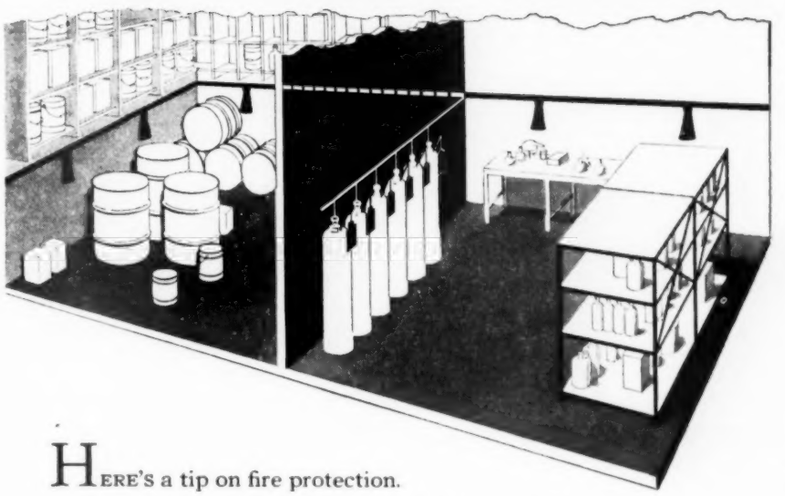
2 JOBS AT ONCE!



HERE'S a tip on fire protection.

One built-in extinguishing installation can be made to do two jobs. This results in substantial savings over the costs of a new installation, *without reducing fire fighting effectiveness.*

It works this way: If you have a built-in LUX system protecting a single fire hazard, you can install LUX Shielded Nozzles at a new hazard point . . . can hook them up to your present LUX cylinders. The installation of directional valves extends fire protection to both locations.

Valve action may be *manually* or *automatically* controlled. When fire breaks out in either space, the valve directs the discharge of LUX carbon dioxide gas to whichever location is in distress. Fire protection experience proves that it is perfectly sound practice to use one bank of LUX carbon dioxide cylinders to guard two spaces.

If you already have a LUX system, here's how to double its "reach". If you're planning new LUX installations, consider this multiple protection from a single bank of LUX cylinders.

LUX SNUFFS OUT FIRE

Walter Kidde & Company
Incorporated

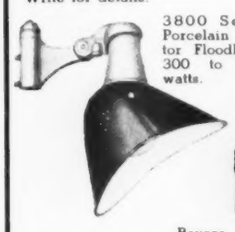
229 West Street **Bloomfield, N. J.**

● From coast to coast the news is spreading about FILM-FITER Windshield Service—and the way its top-notch performance has won customers and "upped" gallonage. Filling stations, small chains, and big nation-wide organizations are reporting even-better-than-expected results. This new, *COMPLETE* service includes special film-removing Glass Cleaner, chemically treated *Windshield Wipes, and a combination dispenser and waste receptacle. FILM-FITER Service is unrivaled for customer appeal!

BAY WEST PAPER CO. GREEN BAY WISCONSIN
FILM-FITER DIVISION
* Manufactured of Mosinee sulphate by the makers of Mosinee Dubltowls

FROM DEFENSE TO Offense!

America must take the offensive for an all-out Victory. Protect your property and increase operating efficiency with Revere Floodlights and Poles—the *complete* line that offers valuable and exclusive construction features. Write for details.



3800 Series Porcelain Elliptor Floodlights, 300 to 1500 watts.

Revere DEFENSE LIGHT for boundaries, storage areas, refineries, bulk plants.

4200 Series Rotating Enclosed-Type Floodlights, 750 to 1500 watts.

Hinged Floodlight Poles eliminate dangerous climbing. Floodlights can be cleaned at ground level.

REVERE ELECTRIC MFG. CO.
2929 NORTH PAULINA STREET · CHICAGO
Originators of the Hinged Floodlight Pole
INDOOR and OUTDOOR LIGHTING EQUIPMENT of EVERY DESCRIPTION

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Every Week

National Petroleum News
Cleveland, Ohio

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less subject to error than the first method. It is therefore better suited to measure the results of the dispatch system.

The use of these forms, principles, standards, and rates, supplemented with time studies conducted periodically have for their ultimate end, effective performance in delivery.

When effective performance in delivery is attained, profits accordingly are maintained and this matter is your vital goal as a private operator.

Socony Compensates Employes In Military Service

NEW YORK — Socony-Vacuum Oil Co., Inc., announces that regular employes who enter military service will be given a leave of absence for the duration of the war and will receive full company pay for the first two months in addition to government pay. After this period, each employe with dependents will receive 50% of his company pay, less the government compensation. The plan is effective Dec. 8.

Asphalt-Sand Barricades Protect San Francisco

CLEVELAND — San Francisco's air raid barricades no longer will consist only of sand bags, for the department of public works has developed a method of mixing the sand with 3% of asphalt cement, according to reports from the Asphalt Institute at New York. The resulting mixture holds its shape after the sacks have rotted away.

Arrow Doubles Storage

CHICAGO—Storage capacity of Arrow Petroleum Co.'s marine terminal here shortly will be increased from 7,500,000 gal. to 15,000,000 gal., according to P. J. Healy, president. Company also has a 7000-bbl. cracking plant under construction at Forrest View, Ill.

Quigley Moves 'Uptown'

NEW YORK—Quigley Oil Co. has moved its offices from 42 Broadway, New York, to the Graybar Building, 420 Lexington Ave., New York, Thomas F. J. Quigley, president, announces.

Dunn Moves Office

CHICAGO—The Harry P. Dunn Co. of 624 S. Michigan Ave., Chicago, announces the opening of new offices in the newly-remodeled Fairbanks Morse building, 600 S. Michigan Ave.

STATISTICS

Refinery Operations

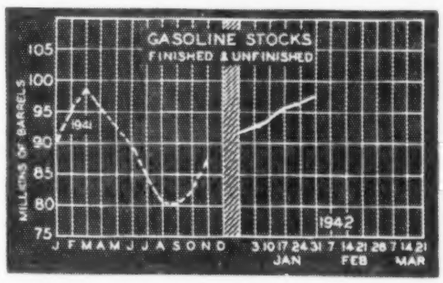
(American Petroleum Institute figures in thousands of barrels of 42 gallons each. Figures include reported totals plus an estimate of unreported amounts and are therefore on a Bureau of Mines basis.)

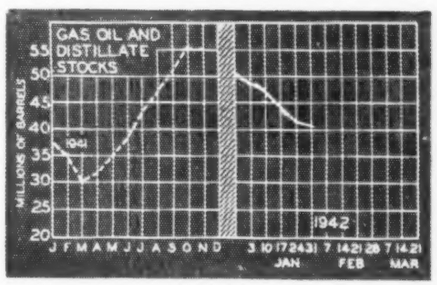
Monthly figures are actual as reported by Bureau of Mines. Weekly figures are as estimated by American Petroleum Institute on Bureau of Mines basis, except crude stocks which are as reported by Bureau of Mines.

Districts	Daily Potential Refining Capacity Week Ended Jan. 24	Daily Potential Refining Capacity Week Ended Jan. 17	Per Cent of Refining Capacity Reporting Week Ended Jan. 24	Per Cent of Refining Capacity Reporting Week Ended Jan. 17	Daily Average Crude Runs to Stills Week Ended Jan. 24	Daily Average Crude Runs to Stills Week Ended Jan. 17	Per Cent of Reporting Capacity Operated Week Ended Jan. 24	Per Cent of Reporting Capacity Operated Week Ended Jan. 17
East Coast	714	714	100.0	100.0	603	565	84.5	79.1
Appalachian	174	174	84.5	84.5	151	150	86.8	86.2
Ind., Ill., Ky.	784	784	84.9	84.9	688	673	87.8	85.8
Okla., Kans., Mo.	418	418	81.1	81.1	346	370	82.8	88.5
Inland Texas	266	266	65.0	65.0	181	180	68.0	67.7
Texas Gulf	1,130	1,130	91.3	91.3	1,049	966	92.8	85.5
La. Gulf	172	172	94.8	94.8	164	156	95.3	90.7
N. La., Ark.	97	97	51.5	51.5	88	84	90.7	86.6
Rocky Mt.	138	138	50.7	50.7	105	102	76.1	73.9
California	787	787	90.9	90.9	510	477	64.8	60.6
TOTAL U. S.—B. of M. Basis	4,680	4,680	86.9	86.9	3,885	3,723	83.0	79.6
U. S. B. of M. Basis Jan. 25, 1941					3,605			

	Gasoline Production at Refineries inc. Natural Blended Week Ended Jan. 24	Gasoline Production at Refineries inc. Natural Blended Week Ended Jan. 17	Stocks of Finished and Unfinished Gasoline Week Ended Jan. 24	Stocks of Finished and Unfinished Gasoline Week Ended Jan. 17	Total Stocks Gas Oil & Distillates Week Ended Jan. 24	Total Stocks Gas Oil & Distillates Week Ended Jan. 17	Total Stocks Residual Fuel Oil Week Ended Jan. 24	Total Stocks Residual Fuel Oil Week Ended Jan. 17
East Coast	1,700	1,644	19,812	20,361	14,207	15,742	9,615	10,109
Appalachian	513	524	3,828	3,868	423	359	491	502
Ind., Ill., Ky.	2,663	2,671	19,754	19,303	3,971	4,266	4,159	4,203
Okla., Kans., Mo.	1,357	1,440	9,452	9,266	1,021	1,117	2,129	2,151
Inland Texas	830	844	3,348	3,348	97	105	1,391	1,409
Texas Gulf	3,269	3,135	16,590	16,255	8,141	8,173	9,006	9,047
La. Gulf	475	508	3,997	3,632	1,508	1,537	2,293	2,416
N. La., Ark.	270	265	821	835	61	61	371	380
Rocky Mountain	376	344	2,030	1,934	290	296	632	626
California	1,475	1,419	16,731	16,815	12,144	12,328	61,992	61,860
Total U. S.—B. of M. Basis	12,928	12,794	96,363*	95,617†	41,863	43,984	92,079	92,703
U. S.—B. of M. Basis Jan. 25, 1941	11,430		88,302		39,415		98,178	

*Finished 88,734,000 bbls.; Unfinished 7,629,000 bbls. †Finished 87,967,000 bbls.; Unfinished 7,650,000 bbls.





N. P. N. Gasoline Index

	Dealer T. W. Cents per Gallon	Tank Car Cents per Gallon
Feb. 2	10.19	6.73
Month ago	10.06	6.79
Year ago	8.59	5.12

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of following wholesale markets for regular-grade gasoline, FOB refineries or terminals: Okla., Mid-Western, W. Penna., Calif., N. Y. Harbor, Philadelphia, Jacksonville, Boston, Gulf Coast.

N. P. N. Refinery Index

The Refinery Index shown below represents the return in cents per barrel (42 gallons) from refining a barrel of 36 gravity Mid-Continent crude into its various principal products. The index is calculated by subtracting the current price of crude at the well from the average price of refined products sold at current quoted Oklahoma refinery prices.

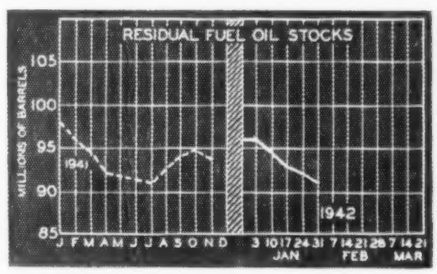
Date	Margin
Feb. 2	70.7
Month ago	71.0
Year ago	46.1

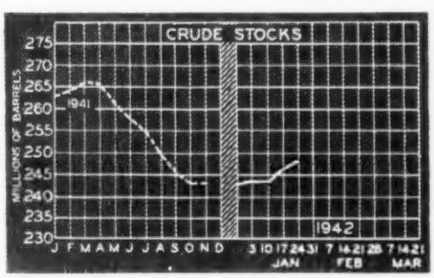
Crude Oil Stocks

(Bureau of Mines Figures; Thousands of Barrels)

Grade or Origin	Jan. 17	Jan. 24	Change
Pennsylvania Grade	3,555	3,519	— 36
Other Appalachian	1,438	1,470	+ 32
Lima-Michigan	1,538	1,456	— 82
Illinois-Indiana	17,781	18,052	+ 271
Arkansas	2,742	2,865	+ 123
Kansas	7,136	7,563	+ 427
Louisiana:	12,406	13,122	+ 716
Northern	3,829	4,160	+ 331
Gulf Coast	8,577	8,962	+ 385
Mississippi	2,628	2,858	+ 230
New Mexico	6,953	6,910	— 43
Oklahoma	*51,098	50,605	— 493
Texas:	84,135	84,490	+ 355
East Texas	20,712	20,467	— 245
West Texas	19,349	19,447	+ 98
Gulf Texas	24,976	24,980	+ 4
Other Texas	19,098	19,596	+ 498
Rocky Mountain	16,330	16,428	+ 98
California	*36,116	36,094	— 22
Foreign	2,411	2,332	— 79
Total U. S. refinable	246,267	247,764	+1,497
Heavy in California	10,414	10,586	+ 172
E. Coast refinery crude	11,632	11,491	— 141
E. Coast pipe line crude	363	357	— 6
E. Coast refined prod'ts	58,316	55,325	—2,991
Total all oils	70,311	67,173	—3,138
East Coast refined stocks in bond	†750	†750	.....

*Revised. †Should be added to B. of M. current totals for all oils as shown above when comparing with a year ago.

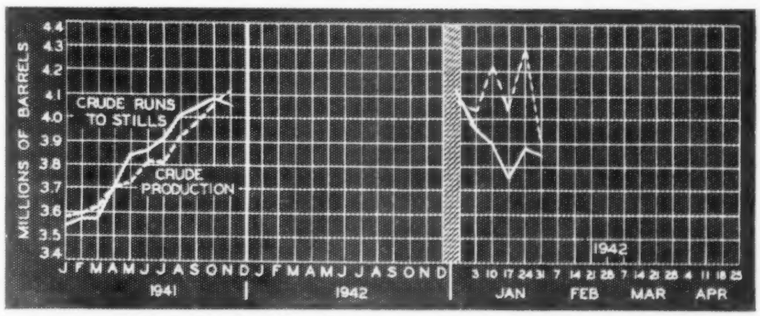




Crude Oil Production

(American Petroleum Institute figures)

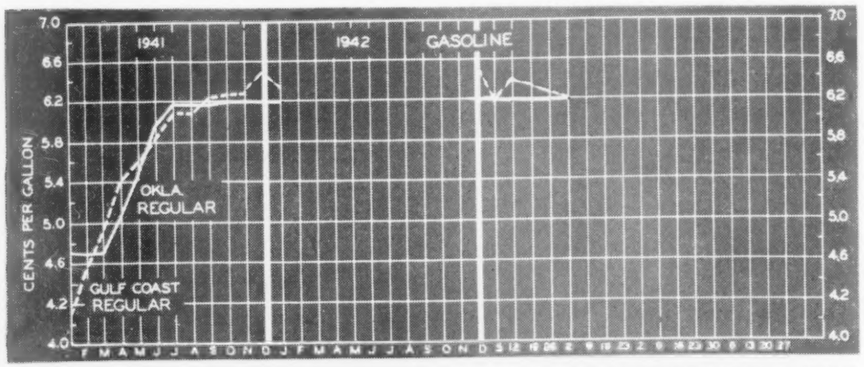
	WEEK ENDED Jan. 31 Barrels (Daily Average)	WEEK ENDED Jan. 24 Barrels (Daily Average)		WEEK ENDED Jan. 31 Barrels (Daily Average)	WEEK ENDED Jan. 24 Barrels (Daily Average)
Oklahoma	408,850	409,850	Eastern (Ill. & Ind. excluded)	100,800	98,250
Kansas	251,200	254,200	Michigan	51,300	48,200
Nebraska	5,250	5,000	Wyoming	89,050	91,600
Texas	1,270,000	1,725,600	Montana	20,800	20,850
Louisiana	366,800	366,350	Colorado	6,650	6,500
Arkansas	74,500	74,150	New Mexico	119,350	118,850
Mississippi	79,750	74,950	California	636,300	634,000
Illinois	370,000	366,950	Total U.S.	3,871,350	4,311,300
Indiana	20,750	16,000			

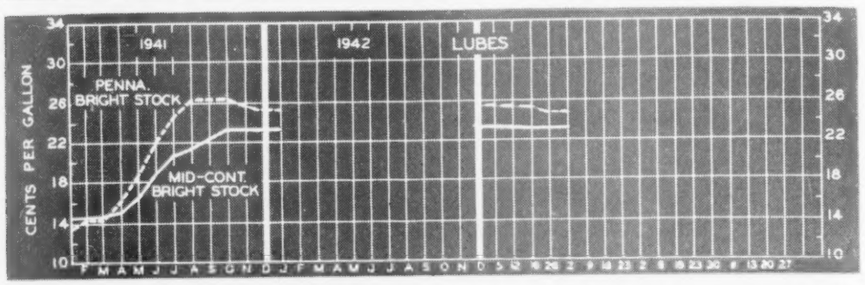

CRUDE RUNS TO STILLS
CRUDE PRODUCTION
MILLIONS OF BARRELS
1941
1942
J F M A M J J A S O N D J F M A M J J A S O N D
3 10 17 24 31 7 14 21 28 7 14 21 28 4 11 18 25
JAN FEB MAR APR

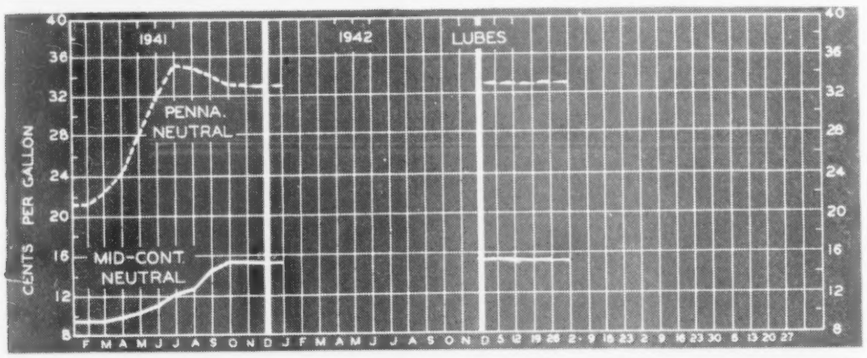
STATISTICS

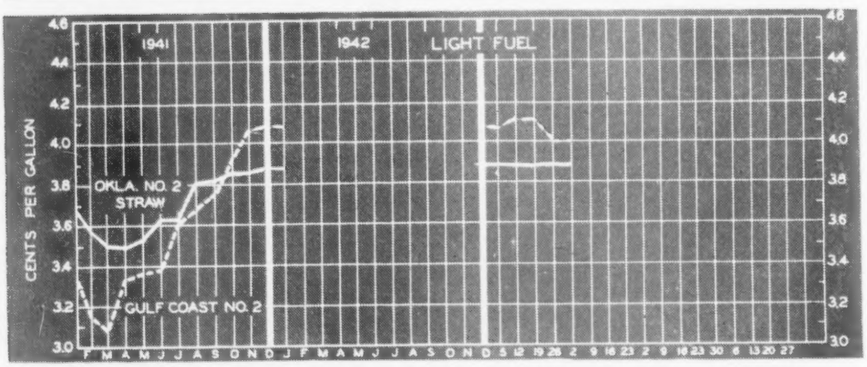
Refinery Prices

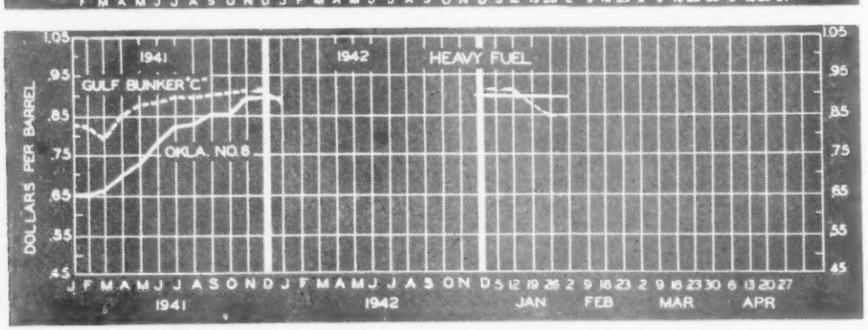
Monthly prices in graphs are averages of daily high and low prices shown in Platt's Oilgram
Weekly prices are averages of high and low prices shown in Monday Oilgram, and in NPN











Pennsylvania Crude Runs

(Compiled by National Petroleum Assn. from reports of all companies which refined Pennsylvania crude. Figures in barrels.)

Week Ended	Daily Average	Week Ended	Daily Average
Jan. 3	72,172	Jan. 24	84,089
Jan. 10	77,676	1941 Low	61,384
Jan. 17	81,658	1941 High	84,326

G.C.R.A. Stocks Report

(Compiled by Gulf Coast Refiners Assn. from reports of member companies. Figures in barrels.)

	Jan. 15	Jan. 1
Gasoline Stocks, Total	1,611,915	1,599,453
Aviation Gasoline	172,497	128,025
Motor Fuel	1,314,630	1,287,558
Naphtha	124,788	183,870
Kerosine	92,053	89,950
Diesel Gas Oil	539,388	453,746
Diesel Fuel	24,379	21,906
Gas Oils, other types	1,018,481	1,041,031
No. 5 Fuel Oil	450,660	324,533
Bunker "C" Fuel Oil	598,738	523,679
Crude Runs (daily average)	111,550	114,993

Pennsylvania Lubricating Oils

(Compiled by National Petroleum Assn. from reports of all companies which refine Pennsylvania grade crude oil. Figures in barrels)

	Production Dec., 1941	Inventory Dec. 31, 1941	Inventory Nov. 30, 1941	Inventory Dec. 31, 1940
1. Raw Long Residuum	88,986	48,364	53,831	30,923
2. 600 Steam Refined Stock	285,571	274,730	295,572	287,033
3. Other Steam Refined Stock	55,770	79,488	86,416	129,493
4. Finished Dewaxed Long Residuum	52,387	64,940	57,036	70,752
5. Bright Stock	189,772	338,734	310,259	442,590
6. Viscous Neutral	90,192	64,382	58,055	64,522
7. Viscous Neutral	101,051	75,340	72,807	107,953

Item 1 includes all raw long residuum below, and not salable as, 600 fire.

Item 2 includes all steam refined stock commonly sold or used as 600 and as raw material for bright stock.

Item 3 includes all material not reported in items 1 & 2.

Item 5 does not include any material reported in item 4.

Item 6 includes viscous neutral below 180 vis. but not below 142 vis. at 100.

Item 7 includes viscous neutral 180 vis. at 100 and above.

Mid-Continent Lubricating Oils

(Compiled by Western Petroleum Refiners Assn. from reports of member companies. Figures in barrels.)

	Bright Stock	Viscous Neutrals	Paraffin Oils	Steam Refined Stock*	Blended Oils
Production	175,384	299,050	75,619	11,038	292,304
Shipments					
Domestic	132,507	258,989	72,893	18,940	286,438
Export	6,742	15,809	71	.....	4,695
Total	139,249	274,798	72,964	18,940	291,133
Inventory, Dec. 31, 1941	383,801	251,880	66,673	33,556	100,119
Inventory, Nov. 30, 1941	347,666	227,628	64,018	41,458	98,948
Inventory, Dec. 31, 1940	376,641	244,927	62,556	73,949	156,572

*New basis of reporting began January, 1940.

MARKETS

Atlantic Coast

NEW YORK, Jan. 31.—Gasoline was priced higher at New York, Philadelphia, and southern seaboard points the week ended Jan. 31 as additional suppliers advanced their quotations, following OPA price-hike approval announced Jan. 22.

At New York, low quotations were up 0.3c to 8.8c for min. 80 oct. (research) and to 8.3c tank cars, 8.2c barges for 72-74 oct. (ASTM). Min. 80 oct. (research) and 68-70 oct. (ASTM) were 0.3c higher at Philadelphia, with low quotations for all grades at that point now at 8.3c. Min. 80 oct. was priced higher at Wilmington and Charleston also, up 0.15c to 7.75c and up 0.3c to 7.9c at the two points, respectively.

At Jacksonville, 72-74 oct. was up 0.125c to 7.875c following withdrawal of his quotation of 7.75c by one supplier. Supplier withdrew his 7.75c quotation at Savannah, Miami and Tampa also because of limited supplies resulting from the boat shortage.

Bunker "C" and No. 6 fuels at Portland were quoted at $1.35 following 15c per bbl. reduction by one supplier and withdrawal of his quotations by another.

Gulf

NEW YORK, Jan. 31.—Tanker shortage continued to "tie up" market for refined products at the Gulf the past week. With no tonnage available, refiners said they could find no tankers for their material; and such business as was reported was qualified by conditions of boat availability.

Products quoted lower were min. 80 oct. (research) gasoline, down 0.25c at 6.25 to 6.5c; 72-74 oct. (ASTM) leaded, down 0.125c at 6 to 6.375c; and 41-43 w.w. kerosine, down 0.25c at 4 to 4.375c. Lower offerings all were for prompt lifting.

Sale of Bunker "C" cargo at $0.85 was reported, for prompt lifting or "soon as a boat is available," destination not revealed.

California

LOS ANGELES, Jan. 30. — Gasoline remained easy the past week with stocks continuing to pile up. In general, prices for Independents ranged upward from 4.5c for third grade.

Natural gasoline was strong with spot quotations ranging from 5.25c to 5.5c. Some independent refiners, without contracts, were cutting the amount of natural gasoline in their third and leaded grades, to a minimum so as to compete with refiners who have contracts at posted prices of 4.75c.

Mid-Western

CHICAGO, Jan. 31 — Ethyl gasoline was offered more freely the past week than for several months. "Loosening up" was due to sharp decline in natural gasoline prices, suppliers here said. Unseasonably warm weather curtailed fuel oil shipments, but several suppliers said a few days of extreme cold and transportation difficulties would tie them up again. Quotations for all products were unchanged.

Open spot sales reported the past week by 4 marketers totaled: 11 cars 78 oct. Ethyl at 6.625c; 11 cars 70-72 oct. at 5.875c; 7 cars 60 oct. & below at 5.25c; 1 car 41-43 kerosine at 3.875c; and 2 cars No. 3 fuel at 3.5c, FOB Group 3.

Refiners Group 3 quotations ranged 7.1 to 7.4c for 78 oct., 6 to 6.375c for 72-74 oct., 5.25 to 5.625c for 60 oct. & below, 4.375 to 4.75c for 41-43 kerosine, and 3.5 to 3.7c for No. 3 fuel. Marketers Group 3 quotations ranged 6.625 to 7c, 5.625 to 5.875c, 5.125, 3.75 to 4.125c, and 3.375 to 3.5c for the 5 products, respectively.

Mid-Continent

TULSA, Jan. 31.—Downward price trend of Grade 26-70 natural gasoline, reflecting seasonal trend in refined gasoline consumption as well as slack refined gasoline movement from Gulf Coast ports, featured Mid-Continent markets the past week.

Decline in Group 3 price totals 0.875c since Jan. 23; FOB Breckenridge, 0.75c since Jan. 21. Last reported quotations were; Group 3, 1 seller 4.5c, 2 sellers 4.25c; Breckenridge, 2 sellers 4c.

Ethyl gasoline was offered more freely than for some time past, according to two Oklahoma refiners. Some refiners said they were using natural gasoline more liberally since price had declined.

Wax demand was heavy with supplies closely held. A number of inquiries, some from Canada, were reported by several refiners. Sellers were studying OPA's latest maximum prices but reserved comment.

Pennsylvania

NEW YORK, Jan. 31.—Demand for all products continued heavy in Western Pennsylvania during the week ended Jan. 31, with stocks of fuel oils and kerosine tight. Some refiners looked for shortage if demand holds at current rate.

Lubes were "bumping against the ceiling," with demand active and supplies closely held. Sales of 4 to 5 cars 25 pt. bright stock to jobber accounts at 25c were reported by one refiner.

Index of Governmental Orders Concerning Petroleum Prices

Orders, "requests", "ceilings", and other statements issued by governmental agencies concerning prices of petroleum and products, prices for which are published in this market section of NATIONAL PETROLEUM NEWS, have been published as follows:

	NATIONAL PETROLEUM NEWS	PLATT'S OILGRAM	Platt's OIL-Law-GRAM
Aug. 4, '41—"Ceiling" on Penna. neutral	Aug. 6, pg. 5	Aug. 4, pg. 1	Pg. 17
Aug. 23, '41—Maximum prices for Penna. grade crudes	Aug. 27, p. 7	Aug. 23, pg. 1	Pg. 17
Aug. 28, '41—Maximum s.s. prices for regular-grade gasoline in 40 Atlantic Coast cities	Sept. 3, p. 7	Aug. 28, pg. 1	Pg. 22
Sept. 4, '41—"Ceiling" on Gulf Coast Minimum 80 oct. (research) gasoline	Sept. 10, pg. 7	Sept. 5, pg. 1	Pg. 58
Nov. 7, '41—See Jan. 17, '42 below.			
Nov. 10, '41—See Jan. 17, '42 below.			
Nov. 21, '41—Maximum prices for paraffin wax	Nov. 26, pg. 5	Nov. 21, pg. 1	Pg. 66
Nov. 28, '41—See Jan. 17, '42 below.			
Jan. 17, '42—OPA letter restating contents of letters of Nov. 7, 10 and 28, '41; formula for determining maximum prices for all products other than those covered by specific orders	Jan. 21, pg. 7	Jan. 19, pg. 1	Pg. 135
Jan. 17, '42—Maximum prices for Bunker "C" and No. 6 fuel, East & Gulf Coasts	Jan. 21, pg. 5	Jan. 20, pg. 1	Pg. 146
Jan. 22, '42—Approval of 0.3c advance in gasoline, Atlantic Coast states	Jan. 28, pg. 7	Jan. 22, pg. 1	Pg. 147
Jan. 28, '42—Amendment No. 1 to paraffin wax price schedule		Jan. 29, pg. 1	

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

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Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "Inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test: and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads.

Summary of Daily Gasoline Prices (Jan. 27 to Feb. 2)

U. S. Motor, (ASTM octane)	Monday Feb. 2	Friday Jan. 30	Thursday Jan. 29	Wednesday Jan. 28	Tuesday Jan. 27
78 octane Ethyl:					
Oklahoma	6.75 – 7.55	6.75 – 7.55	6.75 – 7.55	6.75 – 7.55	6.75 – 7.55
Mid-Western (Group 3 basis)	7.1 – 7.4	7.1 – 7.4	7.1 – 7.4	7.1 – 7.4	7.1 – 7.4
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	7 – 7.625	7 – 7.625	7 – 7.625	7 – 7.625	7 – 7.625
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	7.2 (1)	7.2 (1)	7.2 (1)	7.2 (1)	7.2 (1)
72-74 octane:					
Oklahoma	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375
Mid-Western (Group 3 basis)	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	6 – 6.625	6 – 6.625	6 – 6.625	6 – 6.625	6 – 6.625
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	6.125 – 6.2	6.125 – 6.2	6.125 – 6.2	6.125 – 6.2	6.125 – 6.2
63-66 octane:					
Oklahoma	5.625 – 6	5.625 – 6	5.625 – 6	5.625 – 6	5.625 – 6
Mid-Western (Group 3 basis)	5.625 – 6	5.625 – 6	5.625 – 6	5.625 – 6	5.625 – 6
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.625 – 6.25	5.625 – 6.25	5.625 – 6.25	5.625 – 6.25	5.625 – 6.25
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.75 (1)	5.75 (1)	5.75 (1)	5.75 (1)	5.75 (1)
60 octane & below:					
Oklahoma	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625
Mid-Western (Group 3 basis)	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.25 – 5.875	5.25 – 5.875	5.25 – 5.875	5.25 – 5.875	5.25 – 5.875
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.375 – 5.5	5.375 – 5.5	5.375 – 5.5	5.375 – 5.5	5.375 – 5.5
Motor Gasoline, 72-74 octane (ASTM)					
New York harbor	8.3	8.3	8.3	8.3	8.3
New York harbor, barges	8.2 – 8.3	8.2 – 8.3	8.2 – 8.3	8.2 – 8.3	8.2 – 8.3
Philadelphia district	8.3	8.3	8.3	8.3	8.3
Baltimore district	8.05	8.05	8.05	8.05	8.05
Motor Gasoline:					
Western Penna. Bradford-Warren:					
Min. 80 Oct. ('39 Research)	No Price	No Price	No Price	No Price	No Price
74-76 Oct. (ASTM)	7.5 (1)	7.5 (1)	7.5 (1)	7.5 (1)	7.5 (1)
74-76 Oct. (L-3)	7.5 (1)	7.5 (1)	7.5 (1)	7.5 (1)	7.5 (1)
Western Penna. Other Districts:					
Min. 80 Oct. ('39 Research)	No Price	No Price	No Price	No Price	No Price
74-76 Oct. (ASTM)	6.625 – 7.3	6.625 – 7.3	6.625 – 7.3	6.625 – 7.3	6.625 – 7.3
74-76 Oct. (L-3)	6.625 – 7.3	6.625 – 7	6.625 – 7	6.625 – 7	6.625 – 7

REFINERY PRICES

Gasoline—U. S. Motor (ASTM) except where otherwise specified

Prices Effective	Feb. 2	Jan. 26
OKLAHOMA		
78 oct. Ethyl	6.75 – 7.55	6.75 – 7.55
72-74 oct.	6 – 6.375	6 – 6.375
63-66 oct.	5.625 – 6	5.625 – 6
60 oct. & below	5.25 – 5.625	5.25 – 5.625
60-62 400 e.p.	5.375 (1)	5.375 (1)
MID-WESTERN (Group 3 basis)		
78 oct. Ethyl	7.1 – 7.4	7.1 – 7.4
72-74 oct.	6 – 6.375	6 – 6.375
63-66 oct.	5.625 – 6	5.625 – 6
60 oct. & below	5.25 – 5.625	5.25 – 5.625
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
78 oct. Ethyl	7 – 7.625	7 – 7.625
72-74 oct.	6 – 6.625	6 – 6.625
63-66 oct.	5.625 – 6.25	5.625 – 6.25
60 oct. & below	5.25 – 5.875	5.25 – 5.875
60-62, 400 e.p.	5.5 (1)	5.5 – 6 (1)
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
78 oct. Ethyl	7.2 (1)	7.2 (1)
72-74 oct.	6.125 – 6.2	6.125 – 6.2
63-66 oct.	5.75 (1)	5.75 (1)
60 oct. & below	5.375 – 5.5	5.375 – 5.5
CENT. W. TEX. (Prices to truck transports)		
80 oct. & above	7.375 (2)	7.375 (2)
72-74 oct.	6.125 (2)	6.125 (2)
67-69 oct.	5.625 (1)	5.625 (1)
62 oct. & below	5.375 (2)	5.375 (2)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
60 oct. & below	5.625(1)	5.375–5.875 (2)
60-62, 400 e.p.	No Price	5.5 – 6 (1)

Prices Effective	Feb. 2	Jan. 26
KANSAS (For Kansas destinations only)		
78 oct. Ethyl	7.375–7.5 (2)	7.375–7.5 (2)
72-74 oct.	6.3 – 6.375	6.3 – 6.375
63-66 oct.	5.9 – 6 (2)	5.9 – 6 (2)
60 oct. & below	5.5 – 5.625	5.5 – 5.625
ARK. (For shipment to Ark. & La.)		
72-74 oct.	No Price	No Price
70-72 oct.	6 (1)	6 (1)
60 oct. & below	5.5 (1)	5.5 (1)
WESTERN PENNA. (Motor gasoline)		
Bradford-Warren:		
Min. 80 oct. ('39 research)	No Price	No Price
74-76 oct. (ASTM)	7.5 (1)	7.5 (1)
74-76 oct. (L-3)	7.5 (1)	7.5 (1)
Other districts:		
Min. 80 oct. ('39 research)	No Price	No Price
74-76 oct. (ASTM)	6.625–7.3	6.625–7.3
74-76 oct. (L-3)	6.625–7.3	6.625–7
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group)		
U.S. Motor: (Oct. ASTM):		
72-74 oct.	8.5	8.5
67-69 oct.	7.7 – 7.75	7.7 – 7.75
Str. run gasoline, excluding Detroit shpt.	5.25 – 6.25	5.25 – 6.25
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
72-74 oct.	8.375	8.375
CALIFORNIA U.S. Motor:		
58-61 grav., 375-400 e.p., 65 oct. & above	5.5 – 8	6.5 – 8
54-58 grav., for outside state shipment	4.5 – 6.75	5 – 7
54-58 grav., for instate shipment	4.5 – 6.75	5 – 6.75

Kerosine, Gas & Fuel Oils

Prices Effective	Feb. 2	Jan. 26
OKLAHOMA		
41-43 grav. w.w.	4.375 – 4.75	4.375 – 4.75
42-44 grav. w.w.	4.5 – 4.875	4.5 – 4.875
Range Oil	4 – 4.375	4 – 4.375
No. 1 P.W.	3.875 – 4.25	3.875 – 4.25
No. 1 straw	3.5 – 4	3.5 – 4
No. 2 straw	3.625 – 4.125	3.625 – 4.125
No. 3 fuel	3.5	3.5
U.G.I. Gas Oil	3.625 (1)	3.625 (1)
No. 6 fuel	$0.90 (1)	$0.90 (1)
14-16 fuel	$0.95 (2)	$0.95 (2)
MID-WESTERN (Group 3 basis)		
41-43 grav. w.w.	4.375 – 4.75	4.375 – 4.75
42-44 grav. w.w.	4.5 – 4.875	4.5 – 4.875
Range Oil	4 – 4.2 (2)	4 – 4.2 (2)
No. 1 p.w.	3.875 – 4.125	3.875 – 4.125
No. 2 straw	3.625 – 3.8	3.625 – 3.8
No. 3	3.5 – 3.7	3.5 – 3.7
No. 5	$0.85 (1)	$0.85 (1)
No. 6	$0.85-$0.875 (2)	$0.85-$0.875 (2)
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
41-43 grav. w.w.	4.25 – 4.75	4.25 – 4.875
No. 1 P.W.	4.2 (2)	4.2 – 4.5 (2)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
41-43 grav. w.w.	4.75 (1)	4.75 (2)
No. 1 straw	4.3 (1)	4.3 (1)
KANSAS (For Kansas destinations only)		
41-43 grav. w.w.	4.7 (1)	4.7 (1)
42-44 gravity w.w.	4.8 – 4.875	4.8 – 4.875
No. 1 p.w.	4.2 – 4.3	4.2 – 4.3
No. 6 fuel	$0.90-$0.925 (2)	$0.90-$0.925 (2)

REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads.

Kerosine, Gas & Fuel Oil

(Continued)

Prices Effective	Feb. 2	Jan. 26
ARK. (For shipment to Ark. and La.)		
41-43 grav. w.w.	4.625 (1)	4.625 (1)
No. 1	4 (1)	4 (1)
No. 2	3.5 (1)	3.5 (1)
No. 3 fuel	3.5 (1)	3.5 (1)
Tractor fuel, for shpt. to Ark. points only	5.125 (1)	5.125 (1)
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	6 – 6.25	6 – 6.25
46 grav. w.w.	6.375 (1)	6.25 (1)
No. 1 fuel	6.125– 6.25	6.125– 6.25
No. 2 "	6 – 6.25	6 – 6.25
No. 3 "	6 – 6.25 (2)	6 – 6.25 (2)
36-40 gravity	6 (1)	6 (1)
Other districts:		
45 grav. w.w.	6.25	6.25
46 grav. w.w.	6.25 – 6.375	6.25 – 6.375
47 grav. w.w.	6.375– 6.5	6.375– 6.5
No. 1 fuel	5.375– 5.875	5.375– 5.875
No. 2 "	5.375– 5.875	5.375– 5.875
No. 3 "	5.125– 5.875	5.125– 5.875
36-40 grav., Pittsburgh dist. prices excluded	5 – 5.5	5 – 5.75
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group.)		
47-49 gravity w.w.	5.8 – 6	5.8 – 6
P.W. Distillate	5.5 – 6	5.5 – 6
No. 3 gas oil, Straw.	5 – 5.8	5 – 5.8
U.G.I. gas oil	4.5–4.875 (2)	4.5–4.875 (2)
Fuel Oils (Vis. at 100):		
300-500 Vis.	4 – 4.25 (2)	4 – 4.25 (2)
100-300 Vis.	4.5 (1)	4.5 (1)
OHIO (S. O. Ohio quotations for statewide delivery)		
Kerosine	7	7
CALIFORNIA		
40-43 grav. w.w.	4.5 – 6	4.5 – 6
San Joaquin Valley:		
Heavy fuel	$0.75 –$0.85	$0.72 –$0.85
Light fuel	$0.75 –$0.85	$0.75 –$0.85
Diesel fuel	2.75 – 4	2.75 – 4
Stove dist.	2.75 – 4	2.75 – 4
Los Angeles:		
Heavy fuel	$0.75 –$0.85	$0.72 –$0.80
Light fuel	$0.75 –$0.85	$0.75 –$0.85
Diesel fuel	2.75 – 4	2.75 – 4
Stove dist.	2.75 – 4	2.75 – 4
San Francisco:		
Heavy fuel	$0.85	$0.85
Light fuel	$0.95	$0.95
Diesel fuel	4.5	4.5
Stove dist.	5.5	5.5

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

WESTERN PENNA.

Prices are for sales made, or offers reliably reported, to jobbers & compounders only.

Viscous Neutrals—No. 3 col. Vis. at 70° F.

200 Vis. (180 at 100°) 420-425 fl.

0 p.t.	40.5 (1)	40.5 (1)
10 p.t.	39.5 (1)	39.5 (1)
15 p.t.	38.5 (1)	38.5 (1)
25 p.t.	33	33

150 Vis. (143 at 100) 490-495 fl.

0 p.t.	38.5 (1)	38.5 (1)
10 p.t.	37.5 (1)	37.5 (1)
15 p.t.	36.5 (1)	36.5 (1)
25 p.t.	31	31

Cylinder Stocks

Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.

10 p.t.	30.5 (1)	30.5 (1)
15 p.t.	29.5 (1)	29.5 (1)
25 p.t.	25	25
600 S.R. filterable	15-16	15-16
650 S.R.	15.5–16.5	15.5–16.5
600 fl.	16-17	16-17
630 fl.	17-17.5	17-17.5

MID-CONTINENT (F. o. b. Tulsa)

Neutral Oils (Vis. at 100° F. 0 to 10 P.P.)

Pale Oils:

Vis.	Color		
60-85	No. 2	8 – 8.5	8 – 8.5
86-110	No. 2	8.5 – 8.75	8.5 – 8.75
150	No. 3	14.5	14.5
180	No. 3	15	15
200	No. 3	15-15.5	15-1.55
250	No. 3	16.5	16.5
280	No. 3	17-17.5	17-17.5
300	No. 3	18-18.5	18-18.5

Lubricating Oils (Cont'd)

Prices Effective	Feb. 2	Jan. 26
Red Oils:		
180—No. 5	15 (1)	15 (1)
200—No. 5	15–15.5 (2)	15–15.5 (2)
280—No. 5	17.5 (1)	17.5 (1)
300—No. 5	17.5–18.5	17.5–18.5

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

Bright Stock—Vis. at 210°

200 Vis. D	27 (1)	27 (1)
150-160 Vis. D:		
0 to 10 p.p.	23–23.5	23–23.5
10 to 25 p.p.	22.5–23	22.5–23
25 to 40 p.p.	23 (1)	23 (1)
150-160 Vis. E	22–22.5	22–22.5
120 Vis. D:		
0 to 10 p.p.	22–22.5	22–22.5
600 S.R. Dark Green	9–9.5 (2)	9–9.5 (2)
600 S.R. Olive Green	10–11	10–11
631 S.R.	18.5 (1)	18.5 (1)
Black Oil	5.5 (1)	5.5 (1)

SOUTH TEXAS Neutral Oils

Vis.	Color		
Pale Oils: (*Vis. at 100° F.*)			
100	No. 1½-2½	6.5	6.5
200	No. 2-3	8.75	8.75
300	No. 2-3	9.25	9.25
500	No. 2½-3½	10	10
750	No. 3-4	10.25	10.25
1200	No. 3-4	10.375	10.375
2000	No. 4	10.5	10.5
Red Oils:			
100	No. 5-6	6.5 (2)	6.5 (2)
200	No. 5-6	8.75	8.75
300	No. 5-6	9.25	9.25
500	No. 5-6	10	10
750	No. 5-6	10.25	10.25
1200	No. 5-6	10.375	10.375
2000	No. 5-6	10.5–11.5	10.5–11.5

CHICAGO (From Mid-Continent p.l. crude.)

Neutral oils (Vis. at 100° F. 0 to 10 p.p.)

Pale Oils

Vis.	Color		
60-85	No. 2	9.5 (1)	9.5 (1)
86-110	No. 2	10 (1)	10 (1)
150	No. 3	15.5 (1)	15.5 (1)
180	No. 3	16 (1)	16 (1)
200	No. 3	16 (1)	16 (1)
250	No. 3	17 (1)	17 (1)

Red Oils:

180—No. 5	16 (1)	16 (1)
200—No. 5	16 (1)	16 (1)
250—No. 5	17 (1)	17 (1)
280—No. 5	18 (1)	18 (1)
300—No. 5	18.5 (1)	18.5 (1)

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15c to 30 p.p., 0.25c lower.

Unfiltered Steam Refined: (Viscosity at 210°)

140	11.5 (1)	11.5 (1)
160	12.5 (1)	12.5 (1)
200	13.5 (1)	13.5 (1)

Bright stocks, 160 vis. at 210 No. 8 color:

0 to 10 p.p.	24 (1)	24 (1)
15 to 25 p.p.	23.5 (1)	23.5 (1)
30 to 40 p.p.	21.5 (1)	21.5 (1)
E filtered Cyl. Stock	15.5 (1)	15.5 (1)

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3

Grade 26-70 4–4.5 (Qtns.) 4.75 (Sales)

FOB BRECKENRIDGE

Grade 26-70 4 (Qtns.) 4.5 (Qtns)

CALIFORNIA (FOB plants in Los Angeles basin)

75-85, 350-375 e.p. for blending	4.75 – 5.5	5 – 5.5

Naphtha and Solvent

Prices Effective	Feb. 2	Jan. 26
(FOB Group 3)		
Stoddard solvent	6.625	6.625
Cleaners' naphtha	7.125	7.125
V. M. & P. naphtha	7.125	7.125
Mineral spirits	6.125	6.125
Rubber solvent	7.125	7.125
Lacquer diluent	7.375– 8.125	7.375– 8.125
Benzol Diluent	7.875– 8.625	7.875– 8.625
WESTERN PENNA.		
Untreated naphtha	7 (2)	7 (2)
Stoddard solvent	7.25 – 7.5	7.25 – 7.5
OHIO (S. O. Ohio quotations for statewide delivery): V.M.&P. naphtha, D.C. naphtha, Varnolene & Sohio solvent	10	10
Rubber solvent	9	9

Wax

White Crude Scale:

WESTERN PENNA. (Bbls. C.L., N. Y.)		
122-124 A.m.p.	4.25	4.25
124-126 A.m.p.	4.25	4.25
OKLAHOMA (Bbls. or burlap bags, C.L.)		
124-6 AMP	No Price	No Price
131-3 AMP	No Price	No Price
128 AMP (Min.), white semi-refined, bags	No Price	No Price

CHICAGO (FOB Chicago district refinery of one refiner, in bags, carloads. Carloads, slabs loose 0.4c less. Melting points are EMP (ASTM) methods; add 3° to convert into AMP.)

Fully refined:

122-124 (bags only)	5.6	5.6
125-127	6	6
127-129	6.25	6.25
130-132	6.55	6.55
132-134	6.8	6.8
135-137	7.55	7.55

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less.)

Snow White	6.125– 7.25	6.125– 7.25
Lily White	5.375– 6.125	5.375– 6.125
Cream White	4.375– 5.375	4.375– 5.375
Light Amber	3.375– 3.875	3.375– 3.875
Amber	3.125– 3.625	3.125– 3.625
Red	3 – 3.5	3 – 3.5

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline	Kerosine	Distillate-Fuel Oil	Gas Oil
	Cents per Cwt.	Cents per gal. 6.6 lbs.	Cents per Cwt.	Cents, per gal. 7.4 lbs.
Chicago, Ill.	36	2.376	32	2.368
Decatur, Ill.	32	2.112	31	2.294
Joliet, Ill.	36	2.376	32	2.368
Peoria, Ill.	33	2.178	31	2.294
Quincy, Ill.	31	2.046	29	2.146
Indianapolis, Ind.	38	2.508	39	2.886
Evansville, Ind.	35	2.310	37	2.738
South Bend, Ind.	44	2.904	**42	**3.108
Detroit, Mich.	64	4.224	51	3.774
Grand Rapids, Mich.	55	3.630	**50	**3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	41	2.706	41	3.034
Milwaukee, Wis.	39	2.574	34.5	2.553
LaCrosse, Wis.	37	2.442	37	2.738
Minneapolis-St. Paul	37	2.442	37	2.738
Duluth, Minn.	41	2.706	41.5	3.071
Mankato, Minn.	37	2.442	37	2.738
Des Moines, Ia.	29	1.914	29	2.146
Davenport, Ia.	33	2.178	31	2.294
Mason City, Ia.	34	2.244	33.5	2.479
St. Louis, Mo.	29	1.914	26.5	1.961
Kansas City, Mo.	22	1.452	22.5	1.665
St. Joseph, Mo.	25	1.650	22.5	1.665
Fargo, N. D.	51	3.366	50.5	3.737
Huron, S. D.	43	2.828	42.5	3.145
Wichita				
From Ponca City	7.5	†0.495	7.5	†0.555
From Tulsa	12.5	†0.825	12.5	†0.925
From Cushing	11	†0.726	11	†0.814

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads

Atlantic Coast

(Prices are of refiners, FOB their refineries & their tanker terminals, & of tanker terminal operators FOB their terminals)—Prices Effective Feb. 2

MOTOR GASOLINE

District:	Min. 80 Oct. '39 Research (Max. 2 cc. Lead)	72-74 Oct. (ASTM)	68-70 Oct. (ASTM)
N. Y. Harb.	.8 8 – 9 3	8 3	8 3 (1)
N. Y. Harb., barges	8 8	8 2 – 8 3	8 2 (1)
Albany	8 4 – 9 1	8 4 (1)	....
Philadelphia	8 3 – 9	8 3	8 3 – 8 5 (1)
Baltimore	8 05 – 8 8	8 05	8 05 (1)
Norfolk	7 75 – 8 3	7 8 (1)	7 7 – 7 9 (2)
Wilmington, N. C.	7 75 – 8 2	7 85 (1)	7 375 – 7 9
Charleston	7 9 – 8 2	....	....
Savannah	7 87 – 8 2	....	7 6 – 7 8 (2)
Jacksonville	7 87 – 8 2	7 875 (1)	7 6 – 7 8 (1)
Miami	7 87 – 8 2 (2)	....	....
Tampa	7 75 – 8 2	....	....
Pensacola	7 5 – 7 7 (1)	....	7 1 – 7 3 (1)
Mobile	7 37 – 7 7	....	7 1 – 7 3 (2)
New Orleans	6 75 – 7 37	6 25 – 7	....
Portland	8 6 – 8 9	8 6 – 8 9	....
Boston	8 5 – 8 8	8 5 – 8 8	8 8 (1)
Providence	8 5 – 8 8	8 5 – 8 8	....

FUEL OILS

	KEROSINE and/or NO. 1 FUEL	No. 2	No. 3	No. 5	No. 6
N. Y. Harb.	5 3	5 2	5 2	$1 65–$1 80 (a)	$1 35
N. Y. Harb., barges	5 2	5 1	5 1	....	....
Albany	5 6	5 4	5 4	$1 95 (1)	$1 55 (1)
Philadelphia	5 4 – 5 8	5 2	5 2	$1 68	$1 35
Baltimore	5 4	5 2	5 2	$1 68 (1)	$1 35
Norfolk	5 4 – 5 5	5 2 – 5 45	5 2 (2)	....	$1 35 (2)
Wilmington, N. C.	5 25 – 5 5	5 2 – 5 25	....	....	....
Charleston	5 4 – 5 5	5 2 (2)	....	....	$1 30 (2)
Savannah	5 25 – 5 5	....	....	....	$1 30 (1)
Jacksonville	5 25 – 5 5	4 75 (2)	4 75 (1)	....	$1 30 (1)
Miami	5 25–5 5 (2)	....	....	....	....
Tampa	5 25 – 5 5	4 75 (2)	....	....	$1 25 (1)
Pensacola	4 8 – 5 (1)	....	....	....	....
Mobile	4 75 – 5	....	....	....	....
New Orleans	4 25 – 4 875	3 875 – 4 (2)	....	$1 68 (1)	$0 85 (2)
Portland	5 5	5 3	5 3 (2)	$1 95 (1)	$1 35 (2)
Boston	5 4	5 2	5 2 (2)	$1 65 (2)	$1 35
Providence	5 4	5 2	5 2	$1 60 –$1 65	$1 35

(a) This price is for a straight-run, low pour test No. 5 fuel.

	Bunker C Fuel Ships' bunkers (Ex Lighterage)	Diesel Oil Ships' bunkers Ex Lighterage)	Diesel Oil Shore Plants	Gas House Gas Oil 28-34 Gravity
N. Y. Harbor	$1 35	$2 15	5 2 –5 3 (2)	5 3 (2)
Albany	$1 55 (1)	$2 35 (1)	5 4 (2)	5 6 (1)
Philadelphia	$1 35	$2 15	....	....
Baltimore	$1 35	$2 15	5 2 (1)	5 2 (1)
Norfolk	$1 35	$2 15	5 2 (1)	5 2 (1)
Charleston	$1 30	$2 15 (2)	5 2 (1)	5 2 (1)
Savannah	$1 30 (1)	$1 99 (1)	....	....
Jacksonville	$1 30 (2)	$1 99–$2 10 (2)	....	....
Tampa	$1 25 (2)	$1 99–$2 10 (2)	....	....
New Orleans	$0 85	$1 65 (2)	4 (1)	4 (1)
Portland	$1 35 (2)	$2 23–$2 25	5 3 (1)	5 4 (1)
Boston	$1 35	$2 15 –$2 18	5 2 (2)	5 3 (2)
Providence	$1 35	$2 15 –$2 18	5 2 (1)	5 3 (1)

Wax

(Melting points are AMP, 3° higher than EMP. Export prices FAS c.l. Domestic prices FOB, in bags, c.l. Scale solid; fully refined slabs.)

Prices Effective Feb. 2

Crude Scale:	New Orleans Export	N. Y. Domestic	N. Y. Export
124-6 Yellow	No Price	....	No Price
122-4 White	....	No Price	No Price
124-6 White	No Price	No Price	No Price
Fully Refined:			
123-5	No Price	5 6 (1&a)	5 6 (1)
125-7	No Price	5 6 (1&a)	5 6 (1)
128-30	No Price	6 (2)	6 (1)
130-32	No Price	6 25 (1)	6 25 (1)
133-5	No Price	6 55 (2)	6 55 (1)
135-7	No Price	6 8 (1)	6 8 (1)
108-11 White Match wax (tight bbls.)			No Price

(a) 0.4c discount generally given for slabs loose.

Naphtha

Prices Effective Feb. 2

	V.M.&P. Naphtha	Mineral Spirits
Baltimore	10–10.5 (2)	9 – 9.5
New York Harbor	10.5 (2)	9.5
Philadelphia district	10.5 (2)	9.5
Boston	11 (2)	9.5 – 10
Providence	11 (1)	9.5 –10 (2)

Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	Feb. 2		Jan. 26	
375 e.p. blend, 70 oct.	6 375 – 6 5		6 25 – 6 5	
390 e.p. blend, 68 oct.	6 25 – 6 375		6 25 – 6 375	
390 e.p. blend, 66 oct.	5 875 – 6		5 875 – 6	
400 e.p. blend, 65 oct. min.	5 875 – 6		5 875 – 6	
U. S. Motor, under 65 octane	5 625		5 625	
38-40 grav. w.w. kero., 150 fire point	4 5 – 5		4 5 – 5	
41-43 grav., w.w. kero.	4 75 – 5		4 75 – 5	
44-grav., w.w. kero.	5 – 5 5		5 – 5 5	
Diesel fuel, 24 & above	$1 25	$1 30	$1 25	$1 30
Diesel fuel, under 24	$1 15	$1 25	$1 15	$1 25
30-34 grav. diesel (gas oil) Pac. Spec. 200	$1 25	$1 35	$1 25	$1 35
Grade C fuel, Pac. Spec. 400	$0 85	$0 90	$0 85	$0 90
In Ship's Bunkers, or deep tank lots:				
Diesel fuel, Pac. Spec. 200	$1 35	$1 45	$1 35	$1 45
Grade C fuel, Pac. Spec. 400	$0 85	$0 90	$0 85	$0 90
Cased Goods: (Per case)				
375-400 e.p. blend, 65 oct. & above	$1 50	$1 60	$1 50	$1 60
400 e.p. blend, under 65 oct.	$1 40	$1 50	$1 40	$1 50
U. S. Motor	$1 35	$1 45	$1 35	$1 45
40-43 grav. w.w. kero., 150 fire point	$1 30	$1 40	$1 30	$1 40
Kero., p.w.	$1 25	$1 35	$1 25	$1 35

Tanker Rates

(Approximate last paid rates, cents per bbl.; Gulf-N. Atlantic, not East of N. Y.)

Hvy. Crude & Fuel (10 to 19.9 gravity)	48
Light Crude, (30 grav. or Lighter)	43
Gasoline	40
Kerosine	40
No. 2 Fuel	42

Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf, for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

Prices Effective Feb. 2

Domestic

Motor Gasoline	
Min. 80 oct. '39 Research, max. 2cc lead	6 25 – 6 5
60-62, Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	6 – 6 375
70 oct. unleaded "	6 25 – 6 5
68 oct. " "	6 25
65 oct. " "	5 875
60 oct. " "	5 625
41-43 w.w. kerosine	4 – 4 375
No. 2 fuel	4
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	3 75
43-47 " "	4 125
48-52 " "	4 125
53-57 " "	4 25
58 & above diesel index	4 375
Diesel Oil, ship's bunkers (ex-lighterage)	$1 65 –$1 80
Bunker C, " " "	$0 85 –$0 95
Bunker C, cargoes	$0 85

Export

Motor Gasoline	
60-62 Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	6 – 6 375
70 oct. unleaded "	6 25 – 6 5
68 oct. " "	6 25
65 oct. " "	5 875
60 oct. " "	5 625
41-43 w.w. kerosine	4 – 4 375
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	3 75
43-47 " "	4 125
48-52 " "	4 125
53-57 " "	4 25
58 & above diesel index	4 375

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk, FOB terminals)

Feb. 2

	Steel Drums	Bulk
200 vis. D 210 brt. stock	34–35 (2)	28 8 (2)
150 vis. D 210 brt. stock 0-10 p.p.	30–31 (2)	24 8 (2)
10-25 p.p.	29 5 (1)	24 3 (1)
100 vis. D 210 brt. stock 0-10 p.p.	29 5 (1)	24 3 (1)
10-25 p.p.	29 (1)	23 8 (1)
200 vis. No. 3 col. neutral: 0-10 p.p.	22 (1)	16 8 (1)

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk. exprt. ship., FOB terminals)

Unfiltered Pale Oils: Vis.	Color	Feb. 2	Jan. 26
100	No. 3	6 25–6 5 (2)	6 25–6 5 (2)
200	No. 3	7 75–8 75 (2)	7 75–8 75 (2)
300	No. 3	8 25–9 25 (2)	8 25–9 25 (2)
500	No. 3½	9 25–10 25 (2)	9 25–10 25 (2)
750	No. 4	9 75–11 (2)	9 75–11 (2)
1200	No. 4	10 25–11 5 (2)	10 25–11 5 (2)
2000	No. 4	12 5 (1)	12 5 (1)

Red Oils: Vis.	Color		
100	No. 5-6	6 5 (1)	6 5 (1)
200	No. 5-6	7 75–8 75 (2)	7 75–8 75 (2)
300	No. 5-6	8 25–9 25 (2)	8 25–9 25 (2)
500	No. 5-6	9 25–10 25 (2)	9 25–10 25 (2)
750	No. 5-6	9 75–11 (2)	9 75–11 (2)
1200	No. 5-6	10 25–11 5 (2)	10 25–11 5 (2)
2000	No. 5-6	11–12 5 (2)	11–12 5 (2)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect Feb. 2, 1942 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Wagon	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J	9 3	9 8	4 5	7 9
*Newark, N. J	9 3	9 8	4 5	7 9
Annapolis, Md	9 65	10 15	5 5	9 7
Baltimore, Md	9 05	9 55	5 5	8 7
Cumberland, Md	10 45	10 95	5 5	10 2
Washington, D. C	9 3	9 8	4 5	9 2
Danville, Va	10 75	11 25	6 5	10 45
Norfolk, Va	9 55	10 05	6 5	10 2
Petersburg, Va	9 85	10 35	6 5	11 2
Richmond, Va	9 85	10 35	6 5	11 2
Roanoke, Va	11 05	11 55	6 5	10 7
Charleston, W. Va	11 35	11 85	6 5	11 5
Parkersburg, W. Va	10 65	11 15	6 5	11 2
Wheeling, W. Va	10 65	11 15	6 5	11 8
Charlotte, N. C	11 2	11 7	1 5	9 5
Hickory, N. C	11 75	12 25	1 5	10 5
Mt. Airy, N. C	11 6	12 1	1 5	9 7
Raleigh, N. C	10 95	11 45	1 5	10 5
Salisbury, N. C	11 25	11 75	1 5	10 9
Charleston, S. C	10 05	10 55	1 5	...
Columbia, S. C	10 9	11 4	1 5	...
Spartanburg, S. C	11 6	12 1	1 5	...

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J	12 5	14
Baltimore, Md	15	...
Washington, D. C	15	...

Fuel Oils—T.W.	No. 1	No. 2	No. 3
Atlantic City, N. J	7 9	7 2	7 2
Newark	7 9	7 2	7 2
Annapolis, Md	...	1 45	...
Baltimore	7 7	7 2	7 2
Washington, D. C	8 2	7 6	7 6
Norfolk, Va	7 9	7 2	7 2
Petersburg	8 2	7 2	...
Richmond	8 2	7 2	7 2
Charlotte, N. C	8 5	8 6	...
Hickory	...	8 2	...
Raleigh	9 5	8 3	...
Charleston, S. C	...	7 2	...
Columbia	...	8 2	...
Spartanburg	...	9	...

*Effective Jan. 23, '42, minimum retail resale price of 13.3c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w.

Kerosine—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price; Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)

	Com. Cons. T.W.	Undiv. Dlr. T.W.	Gasoline Taxes
New York City			
Manhattan & Bronx	9 2	9 7	*5 5
Kings & Queens	9 2	9 7	*5 5
Richmond	8 8	9 3	*5 5
Albany, N. Y	9	9 5	5 5
Binghamton, N. Y	10 1	10 6	5 5
Buffalo, N. Y	9 3	9 8	5 5
Jamestown, N. Y	9 5	10	5 5
Mt. Vernon, N. Y	9 2	9 7	5 5
Plattsburg, N. Y	10 1	10 6	5 5
Rochester, N. Y	9 9	10 4	5 5
Syracuse, N. Y	9 6	10 1	5 5
Bridgeport, Conn	9 1	9 6	4 5
Danbury, Conn	9 6	10 1	4 5
Hartford, Conn	9 7	10 2	4 5
New Haven, Conn	9 1	9.6	4 5
Bangor, Me	9 8	10 3	5 5
Portland, Me	9 4	9 9	5 5
Boston, Mass	9	9 5	4 5
Concord, N. H	10 5	11	5 5
Lancaster, N. H	11 1	11 6	5 5
Manchester, N. H	10 4	10 9	5 5
Providence, R. I	9 1	9 6	4 5
Burlington, Vt	10	10 5	5 5
Rutland, Vt	10 1	10 6	5 5

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y	11 9	13 1
New York City	10 5	11 5
Rochester, N. Y	12 7	13 9
Syracuse, N. Y	13 5	...
Boston, Mass	11 5	12 5
Bridgeport, Conn	†15 8	†16 8
Hartford, Conn	†15 8	†16 8
Providence, R. I	12 5	13 5

	Kerosine Yard	Kerosine TW	Mobilfuel Diesel TC	Mobilfuel Diesel TW	Mobilheat Fuel Yard	Mobilheat Fuel TW
New York:						
Manhat'n & Bronx	5 6	8	...	7 5	5 5	7 2
Kings & Queens	5 6	8	...	7 5	5 5	7 2
Richmond	5 5	8	...	...	5 4	...
Albany	5 8	7 8	5 6	7 6	5 6	7 3
Binghamton	7 1	9 1	...	8 9	6 9	8 4
Buffalo	6 8	8 8	6 7	8 7	6 7	8 2
Jamestown	6 9	8 9	...	8 8	6 8	8 2
Mt. Vernon	5 7	8 2	...	7 6	5 6	7 2
Plattsburg	6 3	8 3	...	8 1	6 1	7 6
Rochester	6 9	8 9	6 4	8 4	6 4	7 9
Syracuse	6 7	8 7	6 3	8 3	6 3	7 8
Conn.:						
Bridgeport	5 8	...	...	...	5 7	...
Danbury	6 3	...	...	...	6	...
Hartford	5 8	...	...	7 7	5 7	...
New Haven	5 6	...	...	7 5	5 5	7 1
Maine:						
Bangor	6 1	8 1	5 9	7 9	5 9	7 4
Portland	5 7	8 1	5 5	7 5	5 5	7 2
Mass.:						
Boston	5 8	8	5 6	7 6	5 6	7 2
N. H.:						
Concord	6 6	8 6	...	...	6 7	8 2
Lancaster	7 7	9 7	...	...	7 7	9 2
Manchester	6 7	9	...	...	6 4	7 9
R. I.:						
Providence	5 8	7 8	5 6	7 6	5 6	7 1
Vermont:						
Burlington	6 3	...	6 1	8 1	6 1	7 6
Rutland	6 5	...	...	8 2	6 2	7 7

*Does not include 1% city sales tax applicable to price of gasoline (ex tax).

†In steel barrels.

Discounts: Diesel—On t.w. deliveries, 0.5c for at least 400 gals.; 1c for full tank truck.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.W.	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa	9 3	9 8	5 5	10 15
Pittsburgh	9 8	10 3	5 5	10 5
Allentown	9 8	10 3	5 5	10 5
Erie	9 8	10 3	5 5	10 5
Scranton	9 8	10 3	5 5	10 5
Altoona	9 8	10 3	5 5	10 5
Emporium	9 8	10 3	5 5	10 5
Indiana	9 8	10 3	5 5	10 5
Uniontown	9 8	10 3	5 5	10 5
Harrisburg	9 8	10 3	5 5	10 5
Williamsport	9 8	10 3	5 5	10 5
Dover, Del	...	10 3	5 5	10 5
Wilmington, Del	...	9 8	5 5	10
Boston, Mass	...	10	4 5	8
Springfield, Mass	...	10 9	4 5	8 9
Worcester, Mass	...	10 6	4 5	8 5
Fall River, Mass	...	10 1	4 5	9
Hartford, Conn	...	10 7	4 5	7 9
New Haven, Conn	...	10 1	4 5	9
Providence, R. I	...	10 1	4 5	8 6
Atlantic City, N. J	...	9 8	4 5	7 9
Camden, N. J	...	9 8	4 5	7 9
Trenton, N. J	...	9 8	4 5	7 9
Annapolis, Md	...	10 15	5 5	8 7
Baltimore, Md	...	9 55	5 5	7 7
Hagerstown, Md	...	10 65	5 5	8 2
Richmond, Va	...	10 35	6 5	10 2
Wilmington, N. C	...	10 65	7 5	9 8
Brunswick, Ga	...	10	7 5	*9
Jacksonville, Fla	...	10	8 5	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa	10 5	12
Lancaster, Pa	11 5	13
Pittsburgh, Pa	12 5	12 5

	Fuel Oils—T.W. 1	2	3	5	6
Phila., Pa	8	7 2	7 2	4 75	3 75
Allentown, Pa	8 5	7 5	7 5	...	...
Wilmington, Del	8	7 2	7 2	...	...
Springfield, Mass	8 9	7 6	7 6	...	...
Worcester, Mass	8 5	7 5	7 5	...	...
Hartford, Conn	7 9	7 2	7 2	...	...

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

S. O. Ohio††

Sohio X-70 Gasoline (*Regular Grade*)

	Consumer T.W.	**Reselers	‡S.S.	Gasoline Taxes	†Kerosine T.W.
Ohio, Statewide	12	10	13 5	5 5	9
Akron	12	9 5	12	5 5	9
Cincinnati	12	9 5	12 5	5 5	9
Cleveland	12	9 5	12 5	5 5	9
Columbus	12	9 5	12 5	5 5	9
Dayton	12	9 5	12 5	5 5	9
Marietta	12	9 5	12 5	5 5	9
Portsmouth	12	9 5	12 5	5 5	9
Toledo	12	9 5	12 5	5 5	9
Youngstown	12	9 5	12 5	5 5	9

Aviation Gasoline—Statewide

	Consumer T.W.	Gasoline Taxes
Sohio Aviation	14 5	5 5
Esso Ethyl Aviation 74 Oct.	15 5	5 5
Esso Ethyl Aviation 80 Oct.	16 5	5 5
Esso Ethyl Aviation 91 Oct.	17 5	5 5
Esso Ethyl Aviation 100 Oct.	24 5	5 5

	†Naphtha—T.W. Statewide	Lucas County
S. R. Solvent	13 5	13 5
D. C. Naphtha	14 5	14 25
V.M.&P. Naphtha	14 5	14 25
Varnolene	14 5	14 25
Sohio Solvent	14 5	14 25

Fuel Oils—T.W.	No. 1	No. 2	No. 3	No. 4
Ohio, Statewide	8	8	7 5	...
Cleveland	10	10	9 5	7 25

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

**Except authorized agents.

††Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 1c state tax.

‡Prices at company-operated stations.

††Statewide prices are subject to exceptions other than those shown.

Discounts:

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Fuel oils—Statewide prices are for t.w. & drum deliveries of 50 gals. or more; prices for deliveries of less than 50 gals. are 0.5c higher. Cleveland Nos. 1, 2, and 3 prices are for bulk deliveries of 5 to 99 gals.; 100 gals. and over are 2c less. Cleveland No. 4 price is for full compartment hose dump only.

Naphthas—to contract consumers off t.w. prices—Statewide: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c. Lucas County: Less than 50 gals., tank wagon price; 50 to 249 gals., 0.5c; 250 to 499 gals., 1c; 500 gals. or over, 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)
Standard (*Third Grade*)

	†Net Dealer Crown	Standard	Gasoline Taxes	Kerosine T.W.
Covington, Ky	9 5	8 5	6 5	9
Lexington, Ky	11	8 5	6 5	9
Louisville, Ky	10 5	9 5	6 5	8 5
Paducah, Ky	8	8	6 5	8 5
Jackson, Miss	10 5	9 5	7 5	*8 5
Vicksburg, Miss	10	9	7 5	*8
Birmingham, Ala	10 5	9 5	*8 5	9
Mobile, Ala	9 5	7 5	*9 5	8 5
Montgomery, Ala	10 5	9 5	*9 5	*9
Atlanta, Ga	10	...	7 5	*9
Augusta, Ga	11	...	7 5	*8 5
Macon, Ga	11	...	7 5	*8 5
Savannah, Ga	10	...	7 5	*8
Jacksonville, Fla	10	9	8 5	8
Miami, Fla	10	9	8 5	8
Pensacola, Fla	9 5	8 5	*9 5	8
Tampa, Fla	10	...	8 5	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices.

S. O. Indiana

Red Crown (*Regular Grade*)
Blue Crown (*Third Grade*)

	Dealer Prices Red Crown Cons. T.W.	Red Crown	Blue Crown	Gasoline Taxes	Kerosine T.W.
Chicago, Ill	11 6	9 6	8 5	4 5	10 3
Decatur, Ill	10 9	8 9	7 7	4 5	9 5
Joliet, Ill	11 9	9 6	8 5	4 5	10 3

(Continued on next page)

Above prices include these inspection fees on both gasoline and kerosine unless otherwise specified, per gallon:
Alabama 1/40c on gasoline, 1/2c on kerosine; Arkansas 1/20c; Florida 1/8c; Illinois 3/100c; Indiana 1/5c in lots of 25 bbls. or less, 2/25c in lots of more than 24 bbls.; Kansas 1/50c; Louisiana 1/32c; Minnesota 7/200c; Missouri 1/50c; Nebraska 3/100c; Nevada, gasoline 1/20c; North Carolina 1/4c; North Dakota 1/20c; Oklahoma 2/25c; South Carolina 1/8c; South Dakota 1/20c; Tennessee 2/5c; and Wisconsin 3/100c.
Kerosine inspection fees only: Iowa 3/50c; Michigan 1/5c per gal.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in genera footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes: also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect Feb. 2, 1942 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. Indiana (Cont'd)

Red Crown (*Regular Grade*)
Blue Crown (*Third Grade*)

	Dealer Prices				
	Red Crown Cons. T.W.	Red Crown	Blue Crown	Gasoline Taxes	Kerosine T.W.
Peoria, Ill	11.7	9.2	9.1	4.5	10.1
Quincy, Ill	11.6	10.1	9.6	4.5	10
Indianapolis, Ind	11.6	9.7	9.6	5.5	*9.8
Evansville, Ind	11.4	9.9	8.4	5.5	*9.6
South Bend, Ind	12	10.5	10	5.5	*10.2
Detroit, Mich	11.4	9.9	9.4	4.5	9.6
Grand Rapids, Mich	11.4	9.3	9	4.5	9.6
Saginaw, Mich	11.4	9.9	9.4	4.5	9.6
Green Bay, Wis	12.2	10.7	9.7	5.5	10.6
Milwaukee, Wis	12.1	10.6	10.1	5.5	10.5
La Crosse, Wis	11.9	10.4	9.9	5.5	10.3
Minneapolis-St. Paul	11.9	9.9	9.5	5.5	10.3
Duluth, Minn	12.2	10.7	10.2	5.5	10.6
Mankato, Minn	11.9	10.4	9.5	5.5	10.3
Des Moines, Ia	11.4	9.9	9.4	4.5	*9.8
Davenport, Ia	11.7	10.2	9.7	4.5	*10.1
Mason City, Ia	11.7	10.2	9.7	4.5	*10.1
St. Louis, Mo	10.3	8.8	8.6	*4.5	9.8
Kansas City, Mo	10.4	8.9	7.9	*4.5	9.4
St. Joseph, Mo	11.2	9	8	*4.5	9.6
Fargo, N. D	12.9	11.4	10.5	5.5	11.3
Huron, S. D	12.3	10.8	10.3	5.5	10.7
Wichita, Kans	10.3	8.2	6.5	4.5	8

Stanavo Aviation 73 Octane

Chicago, Ill	15.7	4.5
Milwaukee, Wis	15.9	5.5
Minneapolis, Minn	15.7	5.5
St. Louis, Mo	15.2	*4.5
Kansas City, Mo	14.8	*4.5
Fargo, N. D	16.7	5.5
Huron, S. D	16.1	5.5

	Oleum Spirits	V.M.&P. Naphtha	Stanisol	*Taxes
	(Prices are basic prices before discounts)			
Chicago	13.5	13.8	12.8	4.5
Detroit	15.8	15	16.3	4.5
K.C., Mo	13.3	14.3	13.8	4.5
St. Louis, Mo	13.7	14.7	13.2	4.5
Milwaukee	14.4	15.4	14.9	5.5
Minneap'ls	14.2	15.2	13.5	5.5

Fuel Oils T. W.

	Chicago Standard Heater Oil
1-99 gals	9
100-149 gals	8
150 gals. & over	7.5

	Stanolex Fuel Oil No. 1	Stanolex Furnace Oil
1-99 gals	8.5	8.5
100-149 gals	7.5	7.5
150-399 gals	7.5	7.5
400 gals. & over	7	7

	Stanolex Fuel Oil A	Stanolex Fuel Oil B
1-99 gals	8	8
100-399 gals	7	7
400-749 gals	6	6
750 gals. & over	5.25	5.25

	Stanolex Bunker C Fuel Oil
1-399 gals	6.5
400-999 gals	5.5
1000 gals. & over	4.5

Other Points: Indianapolis	Stanolex No. 1	Stanolex Furnace Oil
1-99 gals		*8.7
100 gals. & over		*7.7
Detroit		
1-99 gals		7.8
100 gals. & over		6.8
Milwaukee		
1-99 gals		8.7
100 gals. & over		7.7
Minneapolis		
1-99 gals		8.5
100 gals. & over		7.5
St. Louis		
1-99 gals	8.3	7.8
100 gals. & over	7.3	6.8
Kansas City		
1-99 gals		7.6
100 gals. & over		6.6

*Taxes: In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 1c state tax; Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1.5c federal tax and state taxes.

S. O. Nebraska

(*Regular Grade*)

	T.W. Dealer	Gasoline Taxes	Kerosine T.W.
Omaha	11.4 8.9	6.5	9.8
McCook	12 9.4	6.5	9.5
Norfolk	11.9 10.4	6.5	10.3
North Platte	11 9.9	6.5	10
Scottsbluff	12.4 9.5	6.5	9.5

S. O. Louisiana

Esso Gasoline (*Regular Grade*)

	Consumer Tank Wagon	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
New Orleans, La	8.75	9.25	8.5	*9.5
Baton Rouge, La	8.75	9.25	8.5	*9.5
Alexandria, La	8.75	9.25	8.5	*9.5
Lafayette, La	9	9.5	8.5	*9
Lake Charles, La	9	9.5	8.5	*11
Shreveport, La	8.5	9	8.5	*8
Knoxville, Tenn	11.5	12	8.5	12.5
Memphis, Tenn	8.75	9.25	8.5	10.5
Chattanooga, Tenn	10.5	11	8.5	11
Nashville, Tenn	10.5	11	8.5	10
Bristol, Tenn	9.75	10.25	8.5	12
Little Rock, Ark	9.5	10	8	10

*Louisiana kerosine prices are ex 1c state tax.

Discounts:

Esso Gasoline—To undivided dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (*Regular Grade*)
Thriftane (*Third Grade*)

	Humble *Tank Wagon	Humble Retail	Thriftane *Tank Wagon	Thriftane Retail	Gasoline Taxes
Dallas, Tex	8.5†	10.5	7.5†	8.5	5.5
Ft. Worth, Tex	8.5††	10.5	7.5‡	9	5.5
Houston, Tex	8.5	12.5	7.5	10.5	5.5
San Antonio, Tex	8.5	12.5	7.5	10.5	5.5

	Kerosine *Tank Wagon	Kerosine Retail
Dallas, Tex	7	11
Ft. Worth, Tex	7	11
Houston, Tex	8	11
San Antonio, Tex	7	10

	74 Oct. Aviation Gasoline, Clear Tank Car
FOB Baytown, Tex	8.5

*To all classes of dealers & consumers.
†Less 1c allowance to dealers only.
‡Less 1½c allowance to dealers only.
††Less 2c allowance to dealers only.

The Texas Co.

	Gasoline—Dealer Fire-Chief (*Regular*)	T.W. Indian (*3rd Grade*)	Gasoline Taxes
Dallas, Tex	8.5*	7.5*	5.5
Ft. Worth, Tex	8.5*	7.5*	5.5
Wichita Falls, Tex	8.5	7.5	5.5
Amarillo, Tex	8.5	7.5	5.5
Tyler, Tex	8.5*	7.5*	5.5
El Paso, Tex	11	10.5	5.5
San Angelo, Tex	8.5	7.5	5.5
Waco, Tex	8.5*	7*	5.5
Austin, Tex	8.5	7.5	5.5
Houston, Tex	8.5	7.5	5.5
San Antonio, Tex	8.5	7.5	5.5
Port Arthur, Tex	8.5	7.5	5.5

*Less 1c temporary allowance to all dealers.

Continental Oil Co.

(N.B. Prices are Continental's "normal" prices. Prices do not reflect temporary reductions made to meet local competition)

	Conoco Bronz-z-z (*Regular*) †Tank Wagon	Demand (*3rd Grade*)	Gasoline Taxes	Kerosine T.W.
Denver, Col	11	10	5.5	11
Grand Junction, Col	12	11	5.5	12
Pueblo, Col	10.5	9.5	5.5	10.5
Casper, Wyo	11.5	10.5	5.5	12
Cheyenne, Wyo	11	10	5.5	11.5
Billings, Mont	12.5	11.5	6.5	12.5
Butte, Mont	13.5	12.5	6.5	13.5
Great Falls, Mont	12.5	11.5	6.5	12.5
Helena, Mont	13	12	6.5	13
Salt Lake City, Utah	13.5	12.5	5.5	14.5
Boise, Ida	14.1	13.1	6.5	16.5
Twin Falls, Ida	15.6	14.6	6.5	17
Albuquerque, N. M	10.5	9.5	*7	10
Roswell, N. M	10	9	*7	9.5
Santa Fe, N. M	10.5	9.5	*7.5	10
Ft. Smith, Ark	9.5	9.25	*7	9.5
Texarkana, Ark	9	8	*5.5	9
Muskogee, Okla	9.5	8.5	‡	8.5
Oklahoma City, Okla	9.5	8.5	‡	8.5
Tulsa, Okla	9.5	8.5	‡	8.5

*Taxes: In gasoline tax column are included these city taxes—Albuquerque, & Roswell, 0.5c; Santa Fe, 1c. Texas 4c state tax applies within city limits of Texarkana, Ark.; Okla. 5.5c state applies within city limits of Ft. Smith, Ark.

†To consumers & dealers.

Discounts: To dealers only—Cheyenne 1.5c on Bronz-z-z & Demand.

S. O. California

Standard Gasoline (*Regular Grade*)
Flight Gasoline (*Third Grade*)

	Standard Posted Net Tank Truck	Standard Posted Retail	Flight Posted Net Tank Truck	Flight Posted Retail	Gasoline Taxes
San Francisco, Cal	10	14	9	12	4.5
Los Angeles, Cal	9.5	13.5	8.5	11.5	4.5
Fresno, Cal	11	15	10	13	4.5
Phoenix, Ariz	12	16	10	13	6.5
Reno, Nev	12	16	11	14	5.5
Portland, Ore	10.5	14.5	9.5	12.5	6.5
Seattle, Wash	10.5	14.5	9.5	12.5	6.5
Spokane, Wash	12.5	16.5	11.5	14.5	6.5
Tacoma, Wash	10.5	14.5	9.5	12.5	6.5

	Std. Aviation 73 Posted Net Tank Truck	Gasoline Taxes	Kerosine Tank Truck
San Francisco, Cal	12.5	4.5	11.5
Los Angeles, Cal	12	4.5	10
Fresno, Cal	13.5	4.5	12.5
Phoenix, Ariz	14.5	6.5	12.5
Reno, Nev	14.5	5.5	13.5
Portland, Ore	13	6.5	13.5
Seattle, Wash	13	6.5	13.5
Spokane, Wash	16	6.5	16.5
Tacoma, Wash	13	6.5	13.5

Discounts:

Resale & Commercial: T.C. deliveries 0.25c per gal. off posted net tank truck.

Commercial: Retail deliveries, and/or tank truck deliveries of less than 40 gals., 1c per gal. above posted net tank truck price for Standard Aviation and Standard Gasoline, and 3c per gal. above posted net tank truck for Flight Gasoline, except single deliveries, of less than 40 gals. to Marine trade only, which are billed at posted net tank truck price.

Canada

PRICES ON IMPERIAL OIL, LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline (*Regular Grade*)

	†Gasoline T.W.	*Gasoline Taxes	†Kerosine T.W.
Hamilton, Ont	17.5	11	18
Toronto, Ont	17.5	11	18
Brandon, Man	21	10	23
Winnipeg, Man	20.5	10	22.5
Regina, Sask	18	10	20
Sasaatoon, Sask	20.8	10	22.8
Edmonton, Alta	18.9	10	20.9
Calgary, Alta	16	10	18
Vancouver, B. C	15	10	24
Montreal, Que	17	11	17.5
St. John, N. B	16.5	13	19
Halifax, N. S	16.5	13	19

*Includes 3c Federal, and Provincial taxes.
†To dividend & undividend dealers.

Tank Wagon Price Changes

(These changes have been made in price tables)

Socony-Vacuum—Mobilgas:

Bangor dealer up 1.3c Jan. 24.

S. O. Indiana—Red Crown Gasoline:

Decatur dealer up 1c Jan. 8; Peoria dealer cut 0.5c Jan. 28.

S. O. Indiana—Blue Crown Gasoline:

Decatur dealer up 1c Jan. 8, cut 1c Jan. 28; Peoria dealer cut 0.6c Jan. 28.

Above prices include these inspection fees on both gasoline and kerosine unless otherwise specified, per gallon:
Alabama 1.40c on gasoline, 1.2c on kerosine; Arkansas 1.20c; Florida 1.8c; Illinois 3.100c; Indiana 1.5c in lots of 25 bbls. or less, 2.25c in lots of more than 25 bbls.; Kansas 1.50c; Louisiana 1.32c; Minnesota 7.200c; Missouri 1.50c; Nebraska 3.103c; Nevada, gasoline 1.2.0c; North Carolina 1.4c; North Dakota 1.20c; Oklahoma 2.25c; South Carolina 1.8c; South Dakota 1.20c; Tennessee 2.5c; and Wisconsin 3.100c.
Kerosine inspection fees only: Iowa 3.50c; Michigan 1.5c per gal.

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.

EASTERN & CENTRAL STATES FIELDS

PENNSYLVANIA GRADE

Posted by Jos. Seep Purch. Agency (Aug. 23, '41)

Bradford-Allegany $2.75
Southwest Penna. $2.40
Eureka (West Va.) $2.34
Corning, O. (May 27, '41) $1.31

Posted by The Pennzoil Co. (Aug. 23, '41)

National Transit $2.68*

Posted by Valvoline Pipe Lines (Aug. 23, '41)

Bradford (Elk & McKean Counties, Pa.) $2.75
Warren, Forest, Venango, Clarion & Butler Counties, Pa. $2.68
Allegheny, Beaver, Washington & Greene Counties, Pa. $2.40
West Virginia $2.34
Southeastern Ohio $2.30

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $2.63 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co. (May 27, '41)

Midland, Midland County $1.44
Sherman $1.39

Posted by Simrall Corp. (May 27, '41)

Greendale, Porter, Vernon, Crystal & Wise $1.44
Buckeye, Bentley, Edenville, Beaverton & Monitor (sweet crude type) $1.42
Freeman, Redding, Lincoln & Winterfield $1.39
West Branch-Arenac $1.24
Hamilton-Grout $1.29

Posted by Sohio Corp. (Mich. Div.)

Traverse crude in Allegan, Kent, Ottawa & Van Buren Cos. (June 2, '41) $1.45
Trenton crude, Monroe Co. (June 2, '41) $1.39

Posted by Bay Pipe Line Corp. (May 27, '41)

Saginaw & Wise $1.44
Clare $1.11
Buckeye, Bentley & Kawkawlin $1.42
Adams (June 1, '41) $1.27

ILLINOIS-INDIANA-KENTUCKY-OHIO

Posted by Sohio Corp. (May 21, '41)

Illinois Basin, including Griffin pool $1.37
Carmi, Storms, Ill. area $1.32
Birk City, Ky. area $1.32
Corydon, Ky. area, Henderson $1.32

Posted by Ohio Oil Co. (May 21, '41)

Illinois Basin $1.37
Eastern Ill. & Western Ind. 1.22

Posted by Carter Oil Co. (May 21, '41)

Loudon, Fayette Co. Ill. $1.37

Posted by Mohawk Oil Lines, Inc. (May 21, '41)

Southern Illinois $1.37

Posted by Ashland Oil & Transp. Co. Somerset oil in Ash. Lines, Ky.: (June 19, '41)

Big Sandy River, $1.38 Kentucky River $1.43

Posted by Owensboro-Ashland Co.

Owensboro, Ky. area (May 21, '41) $1.32

Posted by S. O. Ohio (Sept. 1, '41)

Lima, O. $1.25
Cleveland, Lodi & Chatham (O.) areas $1.30

MID-CONTINENT

OKLAHOMA-KANSAS-NORTH TEXAS

(See below for companies posting and dates)

Gravity	Schedule No. 1	Schedule No. 2	Schedule No. 3
Below 21	$0.85	$0.75	$0.81
21-21.9	.87	.78	.83
22-22.9	.89	.81	.85
23-23.9	.91	.84	.87
24-24.9	.93	.87	.89
25-25.9	.95	.90	.91
26-26.9	.97	.93	.93
27-27.9	.99	.96	.95
28-28.9	1.01	.99	.97
29-29.9	1.03	1.02	.99
30-30.9	1.05	1.05	1.01
31-31.9	1.07	1.07	1.03
32-32.9	1.09	1.09	1.05
33-33.9	1.11	1.11	1.07
34-34.9	1.13	1.13	1.09
35-35.9	1.15	1.15	1.11
36-36.9	1.17	1.17	1.13
37-37.9	1.19	1.19	1.15
38-38.9	1.21	1.21	1.17
39-39.9	1.23	1.23	1.19
40 & above	1.25	1.25	1.21

Above schedules posted by:

No. 1: **S. O. Indiana** May 20, '41 in Okla. & Kans. **Sinclair-Prairie** May 20, '41 in Okla. & Kans. beginning with 25-25.9. **Continental** May 19, '41 in Okla. & Kans. beginning with Below 29 at $1.01. **Texaco** May 19, '41 in Okla. & kans. beginning with 28-28.9.

No. 2: **Carter** May 20, '41 in Okla. **Shell** Dec. 5, '41 in Okla. & Kans. **Magnolia** May 21, '41 in Okla.

No. 3: All Dec. 11, '41: **Stanolind & Continental** in N. Tex. **Sinclair-Prairie** in N. Central Tex. **Magnolia & Texaco** in N. & N. Central Tex. **Continental, Magnolia & Sinclair-Prairie** schedules begin with Below 29 at $0.97. **Texaco** schedule begins with 28-28.9.

TEXAS & NEW MEXICO FIELDS

Posted by Humble Oil & Refining Co.

(May 21, '41, except Panhandle, Tex. July 9, '41 and W. Central Texas Dec. 11, '41)

Gravity	Refugio	Texas Gulf Coast	Miran-do	Ana-huac	Dick-inson	East Central Texas	West Central Texas	Pan-handle, Texas	W. Texas & New Mex.	Hawkins Texas
Below 20	$1.08	$1.06	$1.03	$0.98	$0.93	....	....	$0.73	$0.70	$0.80
20-20.9	1.10	1.08	1.05	1.00	.95	....	....	.75	.72	.82
21-21.9	1.12	1.10	1.07	1.02	.97	....	....	.77	.74	.84
22-22.9	1.14	1.12	1.09	1.04	.99	....	....	.79	.76	.86
23-23.9	1.16	1.14	1.11	1.06	1.01	....	....	.81	.78	.88
24-24.9	1.18	1.16	1.13	1.08	1.03	....	....	.83	.80	.90
25 & above	....	....	....	....	....	....	....	....	....	.92
25-25.9	1.20	1.18	1.15	1.10	1.05	$0.97	$0.91	.85	.82	....
26-26.9	1.22	1.20	1.17	1.12	1.07	.99	.93	.87	.84	....
27-27.9	1.24	1.22	1.19	1.14	1.09	1.01	.95	.89	.86	....
28-28.9	1.26	1.24	1.21	1.16	1.11	1.03	.97	.91	.88	....
29-29.9	1.28	1.26	1.23	1.18	1.13	1.05	.99	.93	.90	....
30-30.9	1.30	1.28	1.25	1.20	1.15	1.07	1.01	.95	.92	....
31-31.9	1.32	1.30	1.27	1.22	1.17	1.09	1.03	.97	.94	....
32-32.9	1.34	1.32	1.29	1.24	1.19	1.11	1.05	.99	.96	....
33-33.9	1.36	1.34	1.31	1.26	1.21	1.13	1.07	1.01	.98	....
34-34.9	1.38	1.36	1.33	1.28	1.23	1.15	1.09	1.03	1.00	....
35-35.9	1.40	1.38	1.35	1.30	1.25	1.17	1.11	1.05	1.02	....
36-36.9	1.42	1.40	1.37	1.32	1.27	1.19	1.13	1.07	1.04	....
37-37.9	1.44	1.42	1.39	1.34	1.29	1.21	1.15	1.09	1.06	....
38-38.9	1.46	1.44	1.41	1.36	1.31	1.23	1.17	1.11	1.08	....
39-39.9	1.48	1.46	1.43	1.38	1.33	1.25	1.19	1.13	1.10	....
40 & above	1.50	1.48	1.45	1.40	1.35	1.27	1.21	1.15	1.12	....

Refugio: Includes crude purchased in East White Point, Greta, Melon Creek, O'Connor-McFaddin, Plymouth, Saxet, Taft, & Tom O'Connor fields.

Texas Gulf Coast: Includes crude purchased in Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa New, Raccoon Bend, South Thompsons, Sugarland, Thompsons, & Webster fields.

Mirando: Includes crude purchased in Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (North & South), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, & Tesoro fields.

Anahuac: Includes crude purchased in Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull (Old & New), Pierce, Junction, Red Fish Reef, & Turtle Bay fields.

Dickinson: Includes crude purchased in Dickinson, Gilloc, Hardin, League City, & Rowan fields.

East Central Texas: Includes crude purchased in Anderson, Cherokee, Limestone, & Navarro Counties, and Navarro Crossing field.

West Central Texas: Includes crude purchased in Brown, Callahan, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, & Throckmorton Counties.

Panhandle, Texas: Includes crude purchased in Carson, Gray, Hutchinson & Wheeler Counties.

West Texas & New Mexico: Includes crude purchased in Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler, & Yoakum Counties, Texas; Lea County, N. M.

Hawkins: Includes crude purchased in Hawkins Field, Wood County, Texas.

Conroe $1.43
Tomball 1.40
Van 1.08
Talco 0.79
East Texas & Flag Lake $1.25
Flour Bluff, E. Flour Bluff 1.33
Salt Flat, N. Salt Flat 1.14
Darst Creek, Hilbig, Carroll 1.14
Clark, Zoboroski $1.14
Alice, Benavides (N. Sweden), Sun 1.35
Ben Bolt, Clark-Muil, Tom Graham 1.35
Yates (Pecos) 0.95
La Rosa 1.33

MAGNOLIA PETROLEUM CO.

(May 21, '41)

Panhandle, Tex.—(July 9, '41)—Same as Humble except Magnolia begins with Below 29 at $0.91.

West Texas—In Crane, Upton, Howard, Glasscock, Mitchell, Winkler, Cochran, Hockley, Yoakum & Gaines Cos.—Same as Humble except Magnolia begins with Below 25 at $0.80.

N. Mexico—In Lea Co.—Same as Humble except Magnolia begins with Below 25 at $0.80 & ends with 36 & above at $1.04.

Cass & Panola Cos., Tex.—Below 25 at $0.88, plus 2c per degree of gravity to 40 & above at $1.20.

Mirando, Tex.—Same as Humble.

East Texas $1.25
Darst Creek 1.14
Luling 1.05
Talco ..... .79
Lytton Springs $1.17
Cleveland-Liberty Co. 1.26
Tomball 1.40

SINCLAIR-PRAIRIE OIL MARKETING CO.

Texas Panhandle—(May 23, '41)—Same as Humble except Sinclair-Prairie begins with Below 25 at $0.83.

West Texas & New Mexico—(May 30, '41)—Same as Humble except Sinclair-Prairie begins with Below 25 at $0.80.

Texas Gulf Coast—(May 21, '41)—Same as Humble.

Mexia District, Texas—(May 30, '41)—Same as Humble, East Central Texas, except Sinclair-Prairie also posts Below 25 at $0.95.

East Texas—(May 21, '41) $1.25

Long Lake, Texas—(May 21, '41) 1.23

Chapel Hill (Washington Co.) Tex. (Jan. 20, '42)
Below 50 grav $1.18
50 grav. & above 1.30

STANOLIND OIL PURCHASING CO.

(May 21, '41)

Clinton, Tex.—Same as Humble Tex. Gulf Coast except Stanolind begins with Below 21 at $1.08.

Fairbanks, N. Houston & Rosslyn, Tex.—Same as Humble Dickinson schedule.

E. Texas ..... $1.25 **Satsuma[& Tomball, Tex.** $1.40

STANOLIND OIL & GAS CO.

(May 21, '41)

W. Beaumont & Spindletop (Jefferson Co., Tex.) **& High Island** (Galveston Co., Tex.)—Same as Humble Tex. Gulf Coast.

Hendrick & Henderson (Winkler Co., Tex.)—Same as Humble West Texas except Stanolind begins with Below 26 at $0.82.

Jay Welder (Calhoun Co., Tex.)—Nov. 14, '41—Same as Humble Anahuac.

THE TEXAS CO.

(May 21, '41)

Panhandle, Tex.—Same as Humble except Texaco begins with 34-34.9 at $1.03.

W. Texas & Lea Co., N. M.—Same as Humble except Texaco posts $0.78 for 23.9 & below and ends with 36 & above at $1.04.

Texas Gulf Coast—Same as Humble except Texaco ends with 34 & above at $1.36.

Duval, Mirando, Tex.—Same as Humble Mirando except Texaco ends with 28-28.9 at $1.21.

Refugio, Tex.—Same as Humble except Texaco ends with 28-28.9 at $1.26.

East Texas $1.25
Darst Creek, Tex. 1.14
Conroe, Tex $1.43
Hockley & Cochran Cos., Tex ..... .87

SHELL OIL CO., INC.

(May 20, '41)

West Texas & Lea Co., N. M.—Same as Humble except Shell ends with 36 & above at $1.04.

Fisher Co., Tex.—(Dec. 11, '41)—Same as Humble W. Central Texas except Shell begins with Below 25 at $0.89.

East Texas $1.25
Livingston field, Polk Co., Tex. 1.25
Pecos Co., Tex., except Yates Shallow pool $0.95
Pecos Co., Yates Shallow pool ..... .82

CONTINENTAL OIL CO.

Carson & Hutchinson Cos., Tex.—(July 9, '41)—Same as Humble Panhandle except Continental begins with Below 29 at $0.91.

Mirando, Tex. (July 1, '41)—Same as Humble.

Wade City & Clara Driscoll, Tex.—(July 1, '41)—Same as Humble Refugio.

Alfred & Magnolia City, Tex.—(May 21, '41), $1.35.
Eddy Co., N. M.—(May 30, '41)—Same as Humble N. M. schedule except Continental begins with Below 29 at $0.88.

PAN AMERICAN PRODUCTION CO.

(May 21, '41)

Hastings & S. Houston, Tex.—Same as Humble Tex. Gulf Coast except Pan Am. begins with Below 21 at $1.08.

Gillock, Tex.—Same as Humble Dickinson except PanAm. begins with Below 21 at $0.95.

East Texas $1.25
Cayuga, Tex. ..... .90
Goodrich, Tex. (Dec. 1, '41) 1.20

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.

CALIFORNIA

Posted by S. O. California, May 23, 1941

All gravities above those quoted take highest price offered in that field

Gravity	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Olinda Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley, Canal, Wasco	Coles Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Gravity
14-14.9	....	$0.68	....	....	$0.71	....	$0.70	....	$0.70	$0.70	$0.70	$0.72	....	....	....	....	....	$0.73	$0.73	$0.73	14-14.9
15-15.9	....	.71	....	....	.75	$0.76	.72	....	.72	.71	.72	.72	....	....	....	....	....	.73	.73	.73	15-15.9
16-16.9	....	.74	$0.79	....	.79	.79	.75	....	.74	.73	.75	.72	....	....	....	....	....	.73	.75	.73	16-16.9
17-17.9	....	.78	.82	....	.82	.82	.78	....	.77	.76	.78	.72	....	....	....	....	....	.75	.78	.73	17-17.9
18-18.9	$0.80	.82	.86	....	.86	.85	.81	....	.80	.79	.82	.74	....	....	....	....	....	.78	.81	.73	18-18.9
19-19.9	.84	.86	.90	....	.89	.88	.85	....	.83	.82	.85	.77	....	....	....	....	$0.73	.81	.84	.75	19-19.9
20-20.9	.88	.90	.94	....	.93	.92	.88	....	.86	.85	.89	.80	....	....	....	....	.76	.85	.87	.77	20-20.9
21-21.9	.92	.94	.98	....	.96	.95	.91	....	.89	.89	.92	.84	....	....	....	....	.79	.90	.90	.80	21-21.9
22-22.9	.96	.98	1.02	$0.88	.99	.98	.95	....	.93	.93	.96	.87	....	....	....	....	.83	.94	.93	.83	22-22.9
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	.98	....	.97	.98	1.00	.91	....	....	....	....	.87	.99	.96	.86	23-23.9
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	1.01	....	1.01	1.02	1.03	.94	$0.99	....	....	....	.90	1.03	.99	.89	24-24.9
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	1.04	....	1.05	1.06	1.07	.98	1.02	....	....	....	.94	1.07	1.01	.92	25-25.9
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	1.08	....	1.09	1.10	1.11	1.01	1.06	....	....	....	.97	1.11	1.04	.95	26-26.9
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	1.11	....	1.13	....	1.15	1.05	1.10	$1.04	....	....	1.01	1.15	1.07	.98	27-27.9
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	1.14	....	1.17	....	....	1.08	1.13	1.08	....	....	1.04	1.19	1.10	1.00	28-28.9
29-29.9	1.20	1.21	....	1.19	1.20	1.20	....	$1.17	....	....	....	1.12	1.17	1.12	....	....	1.07	1.24	1.13	1.02	29-29.9
30-30.9	1.23	1.24	....	....	1.23	1.22	....	1.21	....	Elwood	....	1.15	1.21	1.15	$1.01	$1.09	1.10	1.28	1.16	1.04	30-30.9
31-31.9	....	....	....	....	....	1.24	....	1.25	....	Terrace	....	1.19	1.24	1.19	1.04	1.12	1.14	....	....	1.06	31-31.9
32-32.9	....	....	....	....	....	....	....	1.29	....	F.o.b. Ship	....	1.23	1.28	1.23	1.07	1.14	1.17	....	....	1.09	32-32.9
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.22	....	1.27	....	1.26	1.10	1.17	....	....	....	1.11	33-33.9
34-34.9	Kettleman Hills							1.36	....	1.25	....	1.31	....	1.30	1.13	1.20	....	....	....	1.13	34-34.9
35-35.9	....	$1.23	....	....	....	....	....	....	....	1.28	....	1.35	....	....	1.16	1.22	....	....	....	....	35-35.9
36-36.9	....	1.26	....	....	....	....	....	....	....	....	....	1.39	....	....	1.19	1.25	....	....	....	....	36-36.9
37-37.9	....	1.29	....	....	....	....	....	....	....	....	....	1.43	....	....	1.22	....	....	....	....	....	37-37.9
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.47	....	....	1.25	....	....	....	....	....	38-38.9
39-39.9	....	....	....	....	....	....	....	....	....	....	....	1.51	....	....	....	....	....	....	....	....	39-39.9
40-40.9	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....	....	....	....	....	....	40-40.9

Playa Del Rey: (FOB Standard Pipe Line) 20-20.9, $0.80; 21-21.9, $0.84; 22-22.9, $0.87.
Wheeler Ridge: 22-22.9, $0.76; 23-23.9, $0.80; 24-24.9, $0.83.
Newhall, Kern River, Kern Front, McKittrick & Round Mountain: 14-14.9, $0.73.

LOUISIANA-ARKANSAS

Posted by S. O. Louisiana, May 22, '41

Gravity	Atlanta, Ark. et al.	De Soto, La. et al.	Rodessa, La. et al.	Bunkie, La. et al.	Darrow, La. et al.	University, La. (Baton Rouge)
40 & above	$1.08	$1.18	$1.20	$1.30	$1.30	....
39-39.9	1.06	1.16	1.18	1.28	1.28	....
38-38.9	1.04	1.14	1.16	1.26	1.26	....
37-37.9	1.02	1.12	1.14	1.24	1.24	....
36-36.9	1.00	1.10	1.12	1.22	1.22	....
35-35.9	.98	1.08	1.10	1.20	1.20	....
35 & above	....	....	....	....	....	$1.36
34-34.9	.96	1.06	1.08	1.18	1.18	1.34
33-33.9	.94	1.04	1.06	1.16	1.16	1.32
32-32.9	.92	1.02	1.04	1.14	1.14	1.30
31-31.9	.90	1.00	1.02	1.12	1.12	1.28
30 & below	....	....	....	....	....	1.26
30-30.9	.88	.98	1.00	1.10	1.10	....
29-29.9	.86	.96	.98	1.08	1.08	....
28-28.9	.84	.94	.96	1.06	1.06	....
27-27.9	.82	.92	.94	1.04	1.04	....
26-26.9	.80	.90	.92	1.02	1.02	....
25-25.9	.78	.88	.90	1.00	1.00	....
Below 25	....	.86	.88	.98	....	....
24-24.9	.76	....	.88	....	.98	....
23-23.9	.74	....	.86	....	.96	....
22-22.9	.72	....	.84	....	.94	....
21-21.9	.70	....	.82	....	.92	....
Below 21	.68	....	.80	....	.90	....

Atlanta schedule includes Buckner, Lewisville, Magnolia, Village & Schuler (Jones Sand), Ark.

De Soto schedule includes Sabine, Fouke, Homer, Miller Co., Nebo & Sugar Creek.

Rodessa schedule includes Cotton Valley & Shreveport (Cross Lake) ending with Below 25 at $0.88; Anse La Butte (Aug. 1, '41); Caddo (Oct. 15, 1941).

Bunkie schedule includes Eola, Olla, & South Olla.

Darrow schedule includes Bayou Mallet, Choctaw, Jeanerette, Lirette, N. & S. Crowley, Port Allen, Port Barre, Potash, Roanoke, & St. Martinville.

Big Creek, Dorcheat, McKamie Distillates (Sour) $1.15
Heavy Smackover Crude ..... .83
Cotton Valley Distillate (Sept. 1, '41) 1.40
Cotton Valley (Holloway Sand Crude) 1.25
Lisbon Distillate 1.20

(Continued next column)

LOUISIANA-ARKANSAS (Cont'd)

Posted by Shell Oil Co., Inc. (May 20, '41)

Gravity	Iowa	Roanoke	Gibson
Below 20	$0.99	$0.94	$0.89
20-20.9	1.01	.96	91
21-21.9	1.03	.98	93
22-22.9	1.05	1.00	95
23-23.9	1.07	1.02	97
24-24.9	1.09	1.04	99
25-25.9	1.11	1.06	1.01
26-26.9	1.13	1.08	1.03
27-27.9	1.15	1.10	1.05
28-28.9	1.17	1.12	1.07
29-29.9	1.19	1.14	1.09
30-30.9	1.21	1.16	1.11
31-31.9	1.23	1.18	1.13
32-32.9	1.25	1.20	1.15
33-33.9	1.27	1.22	1.17
34 & above	1.29	1.24	1.19

Iowa schedule includes Black Bayou & White Castle, La. fields.

Roanoke schedule includes Chalkley, La. field.

Gibson schedule includes S. Houma, Hester & W. Lake Verret, La. fields.

Happytown field, St. Martin Par., La. $1.15

Posted by Arkansas Fuel Oil Corp.

Urania, La. (May 22, '41) $1.15

Posted by Continental Oil Co. (May 21, '41)

Tepetate, La. $1.18
Ville Platte, La. 1.20
Lake Arthur, La. 1.18
Ritchie, La. (Sept. 1, '41) 1.08

Abbeville, La.

Below 36	$1.07	37-37.9	$1.11	39-39.9	$1.15
36-36.9	1.09	38-38.9	1.13	40 & above	1.17

CANADIAN FIELDS

Posted by Imperial Oil Limited

Western Ontario (Nov. 6, 1939)

Petrolia ..... $2.10 Oil Springs $2.17

Turner Valley Crude Oil (July 16, '41)

(Prices FOB producer's tankage)

33-33.9	$1.35	44-44.9	$1.57	55-55.9	$1.79
34-34.9	1.37	45-45.9	1.59	56-56.9	1.81
35-35.9	1.39	46-46.9	1.61	57-57.9	1.83
36-36.9	1.41	47-47.9	1.63	58-58.9	1.85
37-37.9	1.43	48-48.9	1.65	59-59.9	1.87
38-38.9	1.45	49-49.9	1.67	60-60.9	1.89
39-39.9	1.47	50-50.9	1.69	61-61.9	1.91
40-40.9	1.49	51-51.9	1.71	62-62.9	1.93
41-41.9	1.51	52-52.9	1.73	63-63.9	1.95
42-42.9	1.53	53-53.9	1.75	64 & over	1.97
43-43.9	1.55	54-54.9	1.77		

Absorption Gasoline (July 16, '41)

90% Rec., 20 lb. Reid v.p. $2.28
90% Rec. 17 lb. Reid v.p. 2.44

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co. (May 20, '41)

Salt Creek (except Tensleep crude), Midway & Dutton Creek, Wyo.

Below 29	$0.96	32-32.9	$1.04	36-36.9	$1.12
29-29.9	.98	33-33.9	1.06	37-37.9	1.14
30-30.9	1.00	34-34.9	1.08	38-38.9	1.16
31-31.9	1.02	35-35.9	1.10	39-39.9	1.18
				40 & above	1.20

Wyoming:		Wyoming:	
Tensleep Crude	$0.6785	Grass Creek Light	$1.00
Frannie Light	.70	Grass Creek Heavy	.50
Frannie Heavy	.47	Elk Basin	1.00
Hamilton Dome	.45	Iles, Colo.	1.07

Posted by Ohio Oil Co. (May 20, '41)

Elk Basin, Wyo. $1.00
Grass Creek, Wyo., Light 1.00
Rock Creek, Wyo. 1.15
Lance Creek, Wyo., (July 1, '41) 1.12

Posted by Continental Oil Co. (May 21, '41)

Ft. Collins & Wellington, Col.

Below 29	$0.96	32-32.9	$1.04	36-36.9	$1.12
29-29.9	.98	33-33.9	1.06	37-37.9	1.14
30-30.9	1.00	34-34.9	1.08	38-38.9	1.16
31-31.9	1.02	35-35.9	1.10	39-39.9	1.18
				40 & above	1.20

Canon City & Florence, Col. $1.05
Cat Creek, Mont. 1.15
Big Muddy, Wyo., (May 30, '41) $1.08
Lance Creek, Wyo., (July 1, '41) $1.12

Posted by Independent Pipe Line Co. (Aug. 1, '41)

Falls City, Neb., field price $0.90
Falls City, Neb., loaded in tank cars 0.95
Shubert, Neb., loaded in tank cars 0.97

SOUTHEASTERN FIELDS

Posted by Allied Pipe Line Corp.

Tinsley (Miss.) Crude (Oct. 16, '41)

24-24.9	$0.745	32-32.9	$0.905
25-25.9	.765	33-33.9	.925
26-26.9	.785	34-34.9	.945
27-27.9	.805	35-35.9	.965
28-28.9	.825	36-36.9	.985
29-29.9	.845	37-37.9	1.005
30-30.9	.865	38-38.9	1.025
31-31.9	.885	39-39.9	1.045
		40 & above	1.065

Pickens (Miss.) Crude (Dec. 16, '41)

24-24.9	$0.685	32-32.9	$0.845
25-25.9	.705	33-33.9	.865
26-26.9	.725	34-34.9	.885
27-27.9	.745	35-35.9	.905
28-28.9	.765	36-36.9	.925
29-29.9	.785	37-37.9	.945
30-30.9	.805	38-38.9	.965
31-31.9	.825	39-39.9	.985
		40 & above	1.005

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Diesel Engineer—Thorough experience in Power plants. Interested in permanent position only. Box No. 64.

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Small or medium sized Distributor business handling Major brand or independent products. Location preferred New York State. Box No. 65.

Small refinery suitable for conversion to manufacture of petroleum specialties and processing of chemicals. Location on inland waterways preferable although anything in East or Mid-west might be adaptable. Write giving location, tankage, equipment, average age, area, price and taxes. Box No. 63, N.P.N.

Wanted to purchase **service stations** and gasoline and fuel oil **bulk storage** plants in Indiana, Illinois, Wisconsin and Michigan. Offers treated confidential.
Address Box No. 56, National Petroleum News

For Sale

Going small jobbing business. Railroad and transport unloading facilities. Ample storage. Doing nice profitable cash business. Located in town of 3500 in Northwest Arkansas. Will take very small capital to handle. Health reason for selling. Address Box No. 62, NPN.

Oil Terminal, 3,000,000 gals. storage, Barge and rail facilities. Going business. 6-7 million gals. per year. Mostly range and No. 2 Fuel Oil. Located about 20 miles north of Boston, Mass. Will sacrifice at less than 50¢ of cost. Leader Filling Stations Corp., 425 Union St., Lynn, Mass.

Four 2 inch Bowser Xacto Bulk Station Meters.

3—1933 Models at $85.00 each
1—1938 Model at $110.00

Above prices are FOB and include Line Strainers. These meters are in daily use and are in good shape.

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Angola, Indiana

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· PERSONALS ·

Timing his departure nicely with the falling mercury of a new cold snap, **Sherman (Sam) Seltzer,** New York, Royal Petroleum Corp. president, and Mrs. Seltzer went to Miami this week for a month's vacation. A little golf and swimming and a lot of sun will keep him occupied while he's there, but he'll probably make a quick trip back to his office in New York for a day or two in the middle of the month.

* * *

R. C. Champlin

Beginning Feb. 1, Ethyl Gasoline Corp.'s advertising will be directed by **Ralph C. Champlin,** who has been director of public relations for the company since 1939, according to an announcement by **J. Coard Taylor,** Ethyl vice-president. **Paul E. McElroy,** former advertising manager, is entering government service. Mr. Champlin joined Ethyl in 1937; was previously connected with Batten, Barton, Durstine & Osborn.

* * *

W. D. Stacy, eastern Wisconsin representative for Mid-Continent Petroleum Corp., has received a 10-year service pin from the company. He is now located in Milwaukee, having recently moved his headquarters from Fond du Lac.

Joseph Marron, Passaic, N. J., has resigned from his duties as treasurer of Home Fuel Oil Co., Home Oil Co., Coastal Oil Co., and Petroleum Holding Co. **Lawrence P. Marron** has been elected as treasurer to succeed him. Joseph Marron, however, will continue on the board of directors and will actively continue his duties in an advisory capacity.

* * *

Among oil company tanker men present at the 80th annual meeting of the board of managers and members of the American Bureau of Shipping Jan. 27 were: **R. K. Kelly,** New York, Tide Water Associated Oil Co.; **N. J. Pluymert,** New York, Socony-Vacuum Oil Co., Inc.; **Christopher Story,** New York, Cities Service Transportation Co.; **A. E. Watts,** New York, Sinclair Navigation Co.; and **Dr. Robert E. Wilson,** New York, Pan-American Petroleum & Transport Co.

* * *

Heading the Tulsa Club in '42 will be **Mark S. Patton,** president of Hurley Gasoline Sales Co. His election to the presidency was announced last week following the annual meeting of the board of directors. Other Tulsa oil men who were elected are: second vice-president—**L. F. McCollum,** president of Carter Oil Co.; secretary—**William B. Way** of the International Petroleum Exposition; directors—**J. J. Conry,** retired president of Carter Oil Co., and **J. A. LaFortune,** executive vice-president of Warren Petroleum Corp.

W. H. Kershaw, New York, sales manager of Texaco, has been appointed to membership on District 1's marketing committee. He takes the place vacated by **H. W. Dodge** who resigned to join Office of Production Management's materials division, now War Production Board. **J. W. Carnes,** Sinclair vice-president, was named chairman of the committee, taking over Mr. Dodge's duties.

* * *

A. W. Horton, president of Horton Oil Co., Oklahoma City, Okla., has resigned from the jobber subcommittee of the District 2 marketing committee to enter active service with the U. S. Army.

* * *

D. B. Pruess, Bartlesville, Okla., has been appointed an additional member of the temporary containers subcommittee of the District 2 marketing committee.

* * *

M. H. Duffield, who began his work with Mid-Continent Petroleum Corp. in the testing laboratory in Tulsa in 1920 and has recently been manager of tank car sales for the company's eastern division with headquarters in Terre Haute, Ind., has returned to Tulsa as a special sales representative with a "roving assignment", according to **R. W. McDowell,** Mid-Continent's vice-president in charge of sales.

Group session at recent annual meeting of Tennessee Oil Men's Assn. If you were there, see if you can find yourself in picture

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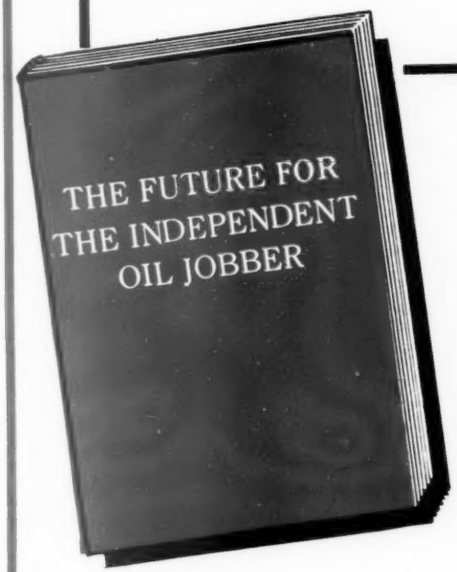

This important book, "The Future For the Independent Oil Jobber," was written for—and about—the Independent Oil Jobber by Warren C. Platt, editor and publisher of National Petroleum News. Page after page carries convincing proofs of the permanency of the jobber today, the economic necessity of the distribution functions he performs, and his assured position in the future. This careful analysis, based on the author's 33 years' first-hand experience with jobbers and their problems, will help to answer many questions that perplex today's oil marketers. A companion report, "Facts About the 1941 Independent Oil Jobber," containing twenty pages of charts, graphs, tables and illustrations showing how the Independent Oil Jobber has grown soundly and rapidly, is available with Mr. Platt's book at the special combination rate below - -

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Blair, Neb.

W. A. Parker—Secretary
N. C. Oil Jobbers Ass'n.,
Raleigh, N. C.

J. W. Jankowiak—President
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Joseph Singer—President
Atlas Oil Co., Hartford, Conn.

Vincent J. Smith—Owner
Smith-Turner Oil Co.,
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R. W. Hadlick—Executive Sec'y.
Mo. Ind. Oil Jobber's Ass'n.,
Jefferson City, Mo.

J. B. Love—Sec'y. Treas.
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